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ABSTRACT

This study examined which variables influenced the career paths of women administrators in the North Carolina and California community college systems. Results of regression analyses on the 643 respondents (189 from California, 454 from North Carolina) indicate that: (1) there was no significant difference in the odds of desiring to advance for the two groups of women; (2) age increased the odds of desiring to advance by 6.67% for each year after age 25, but the odds began to decrease at age 37; (3) for each increase in advanced degree, the odds of desiring to advance increased 6%; (4) the odds of desiring to advance decreased 1.7% for each year at an administrative level, decreased 1.49% for each year at the institution, and decreased 8.78% for each increase in administrative level; (5) the odds of desiring to advance increased 35% for each level of willingness to move, increased 7% for each campus committee/task force served on, and increased 12.5% for each external committee/task force served on; (6) women who possessed a doctorate or were working on one were 2.29 times more likely to desire to advance than women who were not working on a doctorate or possessed one; and (7) California women desired to advance 1.6 times more than women in North Carolina. (Contains 21 tables, 3 figures, 15 appendices (including the survey instrument), and 261 references.) (KP)

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# Career Paths of Women Administrators in the California and North Carolina Community College Systems

Annette Davis Hawkins

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# ABSTRACT

Hawkins, Annette Davis. Career Paths of Women Administrators in the California and North Carolina Community College Systems. (Under the direction of Rosemary Gillett-Karam)

This comparative study of women administrators in the North Carolina and California Community Systems examined whether personal variables {age, ethnicity, marital status, number of younger children (0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age), elderly caregiver status presently, elderly caregiver status in the past five years, and educational level}; situational variables {gender of immediate supervisor, number of years of administrative experience, number of years at current administrative level, number of years at present institution, total number of years in higher education, ethnicity of supervisor, and current job level}; and advancement variables {terminal degree activity, willingness to move, number of campus committees/taskforces served on, number of external committees/taskforces served on, number of upper level positions applied for in the last five years, participation in a leadership institute of more than one day, and sponsor/mentor relationship} influence career paths.

Seven hundred sixty-two surveys (762) were mailed to women instructional administrators in the California and North Carolina Community College Systems in July 1998 to ascertain their career paths and variables influencing their career paths. The final number of respondents in the study was 643, 189 from California and 454 from North Carolina yielding an overall response rate of 87%. Logistic regression analysis was the regression analysis used to analyze the data, and SAS' PROC GENMOD along with WINKS from Texasoft, generated the statistical analyses and descriptive statistics.

Results of logistic regression analyses for the personal variables, situational variables, and advancement variables, except number of applications, indicate no difference in the odds of desiring to advance for the two groups of women. Age ($p < .0001$), a personal variable, increases the odds of desiring to advance 6.67% for each year increase in age at age 25, and the odds of desiring to advance begin to decrease at age 37. In contrast, for each increase in degree ($p < .0001$), the odds of desiring to advance increase 6%. For the situational variables, the odds of desiring to advance decrease 1.7% for each year at an administrative level ($p = .0162$); decrease 1.49% for each year at the institution ($p = .0190$); and decrease 8.78% for each increase in administrative level ($p = .0173$).

Additionally, for the advancement variables, the odds of desiring to advance increase 35% for each level of willingness to move ($p < .0001$); increase 7% for each campus committee/taskforce ($p = .0232$) served on; increase 12.5% for each external committee/taskforce ($p = .0031$) served on ; women who possess a doctorate or are working on one ($p = .0004$) are 2.29 times as likely to desire to advance as women who are not working on a doctorate or possess one; and women who have participated in a leadership institute ($p = .0024$) are 1.96 times as likely to desire to advance as women who have not participated in a leadership institute. For number of applications, the odds of desiring to advance are different for the women. In California and North Carolina, respectively, the odds of desiring to advance increase 8% and 109% for each additional application ($p = .0002$) for an upper level position. Finally, the odds of desiring to advance for women in California are 1.6 times the odds of women in North Carolina.

Recommendations for further research include the use of power by women in the North Carolina and California Community College Systems, and a three to five year follow-up study.

# DEDICATION

I dedicate this dissertation to my sons, Attorney Melvin Tyrone Davis and Kedrick DeSean Hawkins, my parents Zeb and Minnie Rhem, and my aunt, Gladys Williams.

# BIOGRAPHY

Annette Davis Hawkins, daughter of Zeb and Minnie Rhem, was born March 22, 1955. She attended public school in Kinston, North Carolina and graduated from Kinston High School in 1973. She received her BS degree in Math in 1977, her Master's in Education with a concentration in Math in 1983, and a Master's in Adult Education in 1990 from East Carolina University. She was admitted into the doctoral program in Adult and Community College Education at North Carolina State University in 1992.

Ms. Hawkins taught math in the Greenville Public School System for six years before joining the faculty of Wayne Community College in Goldsboro, NC where she has taught for the last fifteen years. At Wayne Community College she chairs the Diversity Taskforce, is a member of the College Council, and the Planning Council. In 1992, Ms. Hawkins received the College Transfer Instructor of the Year Award from the Student Government Association, and in 1994 she was selected for inclusion in Who's Who Among America's Teachers. Professional affiliations include Phi Delta Kappa, North Carolina Association of Developmental Educators, and the Benjamin Banneker Association. Ms. Hawkins is a past co-director of the North Carolina Community College Leadership Institute and is a member of Delta Sigma Theta Sorority.

She is a member of Mt. Calvary Free Will Baptist Church in LaGrange, North Carolina where she serves as an usher, and is also the Career Development Specialist for the General Young People's Department of the United American Free Will Baptist Denomination.

She is single, has two wonderful sons, Melvin and Kedrick, and lives in Kinston, North Carolina.

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# CHAPTER 1

## INTRODUCTION

In the article "Re-Visioning Leadership in Community Colleges", Amey and Twombly (1992) state that community colleges are entering their fifth generation and that leaders in community colleges who began in the 1960s and the 1970s are now, in the 1990s, approaching retirement and leaving unanswered who the new leaders will be. Furthermore, in the same article, Jess Parrish, president of Midland Community College in Midland, Texas at the time is quoted as saying, " . . . the first generation of great community college leadership is passing from the scene, and its replacement is uncertain" (p. 125). Women represent a large talent pool from which to select future community college leaders. However, are women administrators interested in assuming these positions, and are they preparing themselves professionally and personally?

## STATEMENT OF THE PROBLEM

Although women have made gains as administrators, their representation as senior administrators in the workforce in general (Lee, 1993) and in higher education in particular (Gillett-Karam, Roueche, & Roueche, 1991; Warner & DeFleur, 1993) is not parallel to the available talent pool. In addition, several emerging themes highlight the urgent need for more inclusive leadership in community colleges. One, more than ever before the community college is the port of entry to higher education for the economically disadvantaged, women, and minorities (Twombly, 1993). Climate, policies, and procedures play an important role in determining whether these groups preservere or drop out. New leadership must be concerned with more than numbers but also with building opportunities for success (Gibson-Benninger, Ratcliff, & Rhoads, 1996). The new paradigm of leadership builds opportunities for success as well as empowers, coaches, and embodies feminine qualities of nurturing and collaboration (Curcio, Morsink, & Bridges, 1989; DiCroce, 1995; Twombly, 1995).

Two, as community colleges near the end of their maturation phase and replace retiring senior leadership, this new paradigm must be uppermost in the minds of search committees and trustees who confront renewal or decline of their institutions (Amey & Twombly, 1992). While not all women are interested in senior leadership, some are (MacConkey, 1980; Shavlik & Touchton, 1988; Gillett-Karam, Smith, & Simpson, 1997). Research on variables influencing career development exist for women administrators in business (Rosenfeld, 1980; Tinsley & Faunce, 1980; Harlan & Weiss, 1981; Stewart & Gudykunst, 1982; Jaskolka, Beyer, & Trice 1985; Morrison, White, & Van Velsor, 1987; Blum & Smith, 1988; Dreher & Ash, 1990; Gattiker & Larwood, 1990; Landau & Arthur, 1992; Scandura, 1992; Kilduff & Day, 1994; Tharenou & Conroy, 1994; Tharenou, Latimer, & Conroy, 1994; Melamed, 1995) but a paucity of research exists for women administrators in four-year institutions (Moore, 1988) except for Kuyper (1987), Moore (1988), Sagaria (1988), Sagaria and Johnsrud (1992) and Warner and DeFleur (1993) and even fewer for community colleges, except for Grey (1987), Kuyper (1987), and Julian (1992).

Thus, given the paucity of research on career variables of women administrators in community colleges, a study of the career paths of women administrators in community colleges seems appropriate and timely. This study investigated

1) the relationship between career path and personal variables; 2) the relationship between career path and situational variables; and 3) the relationship between career path and advancement variables between selected women administrators in the North Carolina and California Community College Systems. Women administrators in community colleges in the United States in the reporting sequence from department chair, lead instructor, program coordinator, satellite or off campus coordinator to chief instructional officer, executive vice president, associate or assistant chancellor, or provost represented the population. Comprising the sample were women in these positions from the North Carolina and California Community College Systems. Specific research questions were:

**Research Questions:**

1. **What are the differences between women administrators in the North Carolina and the California Community College Systems as related to personal variables {age, ethnicity, marital status, number of younger children (0-5 years of age, 6-11 years of age, and 12-17 years of age), elderly caregiver status presently, elderly caregiver status in the last five years, and educational level} and career path?**

2. **What are the differences between women administrators in the North Carolina and the California Community College Systems as related to situational variables {gender of immediate supervisor, number of years of administrative experience, number of years (full-time) at current administrative level, number of years (full-time) at present institution, total number of years (full-time) in higher education, current job level, and ethnicity of immediate supervisor} and career path?**

3. **What are the differences between women administrators in the North Carolina and the California Community College Systems as related to advancement variables (terminal degree activity, willingness to move, number of campus committees/task forces that served on, number of external committees/task forces that served on, number of upper level positions applied for in the last five years inside and outside this institution, participation in a leadership**

**institute of more than one day in duration, and sponsor/mentor relationship) and career path?**

## BACKGROUND TO THE STUDY

### Historical Background: 1800s - 1900s

In the 1970s, a cigarette commercial used a slogan "you've come a long way" to describe women in the modern world. Indeed they had, considering American history as it relates to women's role in society. Ryan's (1975) Womanhood in America: From Colonial Times to Present, portray colonial men working outside the home, holding office, owning property, and participating in community affairs while women were maintaining the home and nurturing the children. In A Century of Higher Education for American Women, Newcomer (1959) notes that only boys and men received formal schooling until the beginning of the 19th century. The nineteenth century not only heralded the beginning of formal education for women but various other external events began to move women from their homes to community participation.

The Civil War, commercialism, industrialization and other social, political, and economic events of the 1800s began to transform the history of women's separate roles (Ryan, 1975). By 1820, women began to sell their soap, candles, homespun clothing, and cloth to shops which opened in the towns. In addition, women began receiving pay for their nursing and midwifery services and some women even owned taverns during this time period (Ryan, 1975). Dexter's study (as cited in Alpern,1993) notes that in 1840 some women served as chief executive officers of businesses. However, these women were the exceptions; usually they were carrying out work of a deceased father, husband, or a male relative. When they ventured beyond their boundaries, laws pulled them back as in the case of Myra Bradwell (Thurston, 1975; Jacklin, 1981). In 1872, Myra Bradwell applied for a license to practice law in Illinois for which she was denied. Both the Illinois Supreme Court and the United States Supreme Court upheld the ruling. Justice Bradley stated: "... it is repugnant to the concept of family for a woman to adopt a distinct and independent career from that of her husband" (Thurston, 1975, p. 121). Jacklin's version states: "The domestic sphere ... properly belongs to the domain and functions of womanhood ... The paramount destiny and mission of woman are to fulfill the noble and benign offices of wife and mother" (Jacklin, 1981, p. 57).

Women moving from the confines of the home to mainstream participation in American society as workers and leaders did not occur naturally; social, political, economic, historical, technological, and legislative events converged over time to modify attitudes towards women in the work force and women as leaders (Finegan, 1975; Johnson & Stafford, 1975; Greenberger, 1978; Berch, 1982; Malveaux, 1982; Wallace, 1982; Jacobs, 1985; Kessler- Harris, 1985; Riley, 1986; Shakeshaft, 1987; Alpern, 1993).

This section details society's confinement of women to the home taking care of the family. When women attempted activities perceived to not be in the domain of a woman, laws prohibited them from participating. Some women challenged these laws but the courts were not on their side and upheld the community laws. Ironically, colonial supreme court justices did not foresee women working outside the home and certainly not developing a career orientation like serving as a Supreme Court justice, which did not occur until 1981 when President Reagan appointed Sandra Day O'Connor to the Supreme

Court. Only women with a deceased male relative could participate in community life and situations for women did not change until external events forced them to change; these events are detailed in the next section.

**Historical Background: 1900s - 1950s**

Four major events that influenced women's participation in mainstream society include the following: 1) Industrialization opened up more opportunities for men which caused them to leave teaching; women were hired to fill the vacancies; 2) The suffrage movement which resulted in the ratification of the 19th amendment in 1920 gave women the right to vote; 3) World War I in 1917 and 4) World War II in 1941 which created job opportunities for women. Of these events, World War II illustrated to the world that women could perform jobs just as well as men. During the war, women worked in many male dominated fields like heavy industry, the docks, steel mills, and cab and bus companies. Women also flew planes and worked as mechanics and workmen (Ryan, 1975). One sociologist during the war commented that "there are very few jobs performed by men that women cannot do with changed conditions and methods" (Ryan, 1975, p. 317).

A summary of this section illuminates four events that moved women into mainstream job participation: 1) industrialization, 2) the suffrage movement in 1920, 3) World War I in 1917 and 4) World War II in 1941. Of the four events, World War II presented an opportunity for women to demonstrate their skills to the world, which did not go unnoticed. Women worked in many male dominated fields like heavy industry, the docks, steel mills, and even flew planes and worked as mechanics. Unfortunately, these opportunities did not last.

### Post World War II

According to Ryan (1975), after the war, aircraft companies released 800,000 women, and IBM reinforced its policy against hiring married women. Women saw their numbers in the automotive industry decline 17.5 percentage points from 25% to 7.5%. Heavy industries became predominantly male. By 1960, 59% of all women worked in occupations that were predominately female (Ryan, 1975). A key shift in attitudes toward women working also occurred in 1960, for Dipboye's (1987) review *"Problems and Progress of Women in Management"* notes that the public no longer rejected the concept of women pursuing vocational and educational goals comparable to men. However, when women attempted to pursue vocational and educational goals comparable to men they encountered widespread discrimination that did not subside until the federal government intervened by enacting several laws.

### Women's Rights and Legislation

The Equal Pay Act of 1963 stated that for equal work there should be equal pay between the sexes in the same institution; Title VII of the Civil Rights Act of 1964 prohibited discrimination by employers and trade unions on the basis of sex, race, color, religion, or national origin; Executive Order 11375 of 1967 amended Executive Order 11246 which prohibited discrimination on the basis of sex, race, color, religion, or national origins by federal contractors; the Higher Education Act of 1972 prohibited sex discrimination in salaries and fringe benefits of educational institutions; and Title IX of this Act prohibited sex discrimination against students and employees in educational programs and activities (Finegan, 1975; Johnson & Stafford, 1975; Greenberger, 1978; Berch, 1982; Malveaux, 1982; Wallace, 1982; Jacobs, 1985; Kessler-Harris, 1985; Riley, 1986; Dipboye, 1987; Shakeshaft, 1987). Although Dingerson, Rodman, and Wade (1980), Marshall and Paulin (1987), Shakeshaft (1987), Lee (1993), Moore and Sagaria (1993), Northcraft and Gutek (1993), and Rossi (1996) question the success of these laws, since the 1970s, women have been entering managerial careers at a steady but slow pace (Rytina & Bianchi, 1984; Beller, 1985; Fagenson, 1993; Alpern, 1993).

As a matter of fact, statistics show that prior to this time period, the percentage of women in the executive, administrative, and managerial category remained constant at 14.5% in 1960 and 16% in 1970 and increased by 50% from 1970 to 1977 (Treiman & Terrell, 1975; Malveaux, 1982). Additionally, the 1970s figure, 16%, increased to 42.7% in the 1990s, an increase of 26.7% (US and World Direct Sales, 1996). Women can be found in every sector of the work force and in leadership positions.

**Women and Politics**

Two women now sit on the United States Supreme Court, Sandra Day O'Connor and Ruth Bader Ginsberg (Dye, 1995). Women comprise 17% of President Clinton's administrative team; five women serve as Cabinet heads-Janet Reno, Attorney General, Donna Shalala, Secretary of Health and Human Services, Madeline Albright, Secretary of State, and Alexis Herman, Secretary of Labor (Dye, 1995).

In addition, women claim 10% of the United States Congress, 26% of statewide electives, and 21% of state legislatures (Schmittroth, 1995). Furthermore, 30.4% of officials and administrators in state and local government executive branches and 11.1% of the federal government executive branch represent women's leadership roles in these governing bodies (Schmittroth, 1995). Women hold 9.2% of the top positions in the ten largest industrial corporations, 8.1% in the ten largest banks, 13.3% in the six most influential media corporations, and 26.2% in the ten largest foundations (Dye, 1995). Katherine Graham, owner and publisher of the *Washington Post* and *Newsweek*, serves as the only female chairman of the board.

## Women in Higher Education

In higher education, women are also excelling. Women's participation as students began to outnumber men's in 1979 (Kaplan & Tinsley, 1989). In 1993, women constituted 56% of all undergraduates, 53% of all graduate students, and 41% of all first-professional students (American Council on Education, 1995a). In addition, women earned 55% of all degrees awarded in 1992-93, 54% of the bachelors degrees, 54% of all master's degrees, 38% of all doctorates, and 40% of all first-professional degrees (American Council on Education, 1995a).

Women received more bachelor's, master's, and doctoral degrees in education, foreign languages, health sciences, home economics, library sciences, and psychology (Taeuber, 1996). Although degrees earned by women continued to be in female dominated professions, the number of degrees earned in the physical sciences, engineering, and biological sciences increased to 31%, 13%, and 51%, respectively (American Council on Education, 1995a). Women earning first-professional degrees recorded significant gains in optometry (from 27% to 49%), veterinary medicine (48% to

63%) and pharmacy (from 50% to 65%). More than 75% of the first-professional degrees awarded in 1992-93 were in the fields of law and medicine (American Council on Education, 1995a). Women comprised 42% of the law school graduates and 38% of the M.D. graduates. Women of all racial/ethnic groups received more than half of the first-professional degrees in pharmacy and veterinary medicine (American Council on Education, 1995a).

Even though women's participation as students does not mirror their representation among full professors, the increase from 1982-1983 to 1992 is sizable, 12.1% to 18%, a 49% increase (Bognanno, 1987; American Council on Education, 1995a). Eighty-eight percent of the female faculty members were white women, 6% were African American, 3% Hispanics, 3% were Asian Americans, and less than 1% were American Indian. Also, 28% of the associate professors and 49% of the assistant professors were women (American Council on Education, 1995a). Table 1 gives the percentage of women faculty by rank and ethnicity and also reveals that the higher the rank the fewer the women. Most faculty women teach in traditional female fields, nursing (98%) and education (56%). Only six percent of faculty women teach in engineering and 23% in the natural sciences (American Council on Education, 1995a).

Salaries in traditional female fields tend to be lower than in other fields. Faculty in nursing and secretarial science received the lowest salaries in 1994-95; in contrast, faculty in engineering and accounting averaged the highest salaries (American Council on Education, 1995a). Furthermore, no matter what the rank, men earned more than female faculty in 1994-95. In reviewing empirical and theoretical economic research, Madden

(1985) stated that no statistical study can explain the sex wage differential by productivity differences; conversely, no analytical model has been ever to demonstrate how discrimination can persist.

Women received tenure less often than men; only 48% of tenured faculty are female in comparison to 72% of the male faculty (American Council on Education, 1995a). A National Research Council study in 1981 (as cited in Olson & Frieze, 1987) maintained that 50% of the women Ph.D.'s were less likely to have been promoted to full professor.

**TABLE 1: WOMEN FACULTY BY RANK AND ETHNICITY (AS PERCENTAGES) IN UNITED STATES COLLEGES: FALL 1992**

| Ethnic Group | Full Professor | Associate Professor | Assistant Professor | Instructor |
|---|---|---|---|---|
| | | | | |
| White | 12 | 14 | 20 | 38 |
| African American | 13 | 17 | 25 | 33 |
| Hispanic | 9 | 16 | 20 | 35 |
| Asian American | 8 | 13 | 29 | 33 |
| American Indian | 10 | 14 | 16 | 35 |

**SOURCE: American Council on Education (1995a).**

Administratively, there were 1,625 senior women administrators out of 2,689 accredited institutions in 1975, 0.6 per institution (Bognanno, 1987). By 1983, the number of senior women administrators had increased 90% to 3,084 out of 2,824 institutions, 1.1 per institution (Bognanno, 1987; Kaplan & Tinsley, 1989). In 1994, more senior women held the position of chief student affairs officer, chief development officer, and chief academic officer at 31%, 29%, and 25%, respectively (American Council on Education, 1995a). Women held a smaller percentage of the chief executive officer at 14%. Four hundred fifty-three women (453) out of 2,903 institutions, 16%, hold the title of chief executive officer at United States colleges and universities; this number includes public and private colleges as well as two-year colleges (American Council on Education, 1995a). More women hold the title of chief executive officer in private four-year institutions and public two-year institutions at 199 and 138 respectively. In public four-year institutions, women hold 78 out of 556 positions or 14% (American Council of Education, 1995b).

Moore's (1982a) *Leaders in Transitions* study of 577 women and 2,318 men demonstrated that most of the men were presidents, chief business officers, and registrars, and the women were head librarians, registrars, and directors of financial aid. Ninety percent (90%) of the women deans served as deans of female departments: nursing, home economics, arts and sciences and continuing education; there were no women deans of business, engineering, law, medicine, or physical science. Liberal Arts II schools employed most of the women.

Konrad and Pfeffer's (as cited in LeBlanc, 1993) study of 821 educational institutions from the 1978 and 1983 College and University Personnel Associations' Administrative Compensation Survey cited that women and minorities were hired for the lower paying jobs in the organizations. Furthermore, Konrad and Pfeffer postulated that there was an inverse relationship between the level of instability in the political, economic, and social markets and the likelihood of a woman or minority getting a job. The greater the instability, the less probable that a woman or minority will fill a position (Flynn, 1993; LeBlanc, 1993).

Concurring with LeBlanc (1993), Jones (1993) noted that women administrators had the lowest level of responsibilities as directors of admissions, associate directors, and assistants. Correspondingly, women received less pay than men in every administrative position for the same title in 1987 and 1988 (Jones, 1993). Jones (1993) further added that in 1982, out of 52 types of administrative positions with titles of chief officer, dean, or director, women comprised 50% of only eight positions-dean of home economics, dean of nursing, bookstore director, affirmative action/equal employment director, payroll manager, director of alumni affairs, director of publications, and director of student placement. Home economics and nursing, traditional women occupations, were among the eight.

The research in this section informs that women began to outnumber men in higher education in 1979. Women receive more than half of all undergraduate and graduate degrees of which most are in the fields of education, foreign languages, health sciences, home economics, library sciences, and psychology. Women faculty teach in traditional female fields, are less likely to be a full professor and less likely to have tenure. Women's salaries are lower than men's and the salaries in traditional female fields are lower than male dominated fields.

Only 14% of women serve as chief executive officer of a college or university. Most women chief executive officers serve in private four-year institutions and community colleges. Parallel to women faculty teaching in traditional female fields, women administrators serve as the dean of traditional female departments and receive salaries lower than their male counterparts. The next section examines women in community colleges.

## Women in Community Colleges

Unlike four-year institutions, not much is known about women in community colleges. In the article "*Women in the Two-Year College, 1900 to 1970*", Frye (1995, p. 5) states, " As with women administrators, the literature largely ignores women students in the two-year college." Garcia's (1995) article "*Engendering Student Services*" cites the limited amount of student services literature; and finally, Laden and Turner (1995, p. 16) quantify the literature on women students as "not much". However, based on the limited research, women students comprise the majority of students in community colleges as in four-year institutions and tenure for women at tenure granting community colleges is better than four-year institutions. Women's tenure rate in community colleges is about 12% less than men, 63.2% and 75.4%, respectively.

Administratively, as Frye (1995) stated, not much is known about women in community colleges. Twombly (1993) reviewed community college journals (*Community, Junior and Technical College Journal, Community College Frontiers, Community College Review, Community/Junior College Quarterly of Research and Practice, New Directions for Community Colleges,* and *The Journal of the American*

*Association of Women in Community and Junior Colleges*) and other journals (*Journal of College Student Personnel* and *Initiatives* which was formerly *Journal of the National Association of Women Deans, Administrators, and Counselors*) dated from 1970 to 1989 for studies on women and found 174. Less than 19% or 33 had been conducted since 1985. Furthermore, there were only 32 articles on women administrators. The lack of research on women since 1985 led Twombly to conclude that researchers are not interested in studying women in community colleges.

Townsend (1995) is the most prolific critic of the paucity of research on women administrators in community colleges. Townsend (1995) points out that not much is known about women in community colleges, researchers seldom study them, and they don't write about themselves. This writer experienced some difficulties as well in searching for information on women administrators in community colleges. For example, in a recent book by Baker, A Handbook on the Community College in America: Its History, Mission, and Management, Gillett-Karam's entry is the only one on women administrators in the book. Moreover, in the 1994 ASHE READER SERIES for Community Colleges, Twombly's discussion of the lack of scholarship on women administrators in community colleges is the only entry on women in this book.

Nevertheless, of all higher education institutions, community colleges achieved phenomenal gains, 555%, going from 11 women presidents in 1975 to 72 in 1984 (Fobbs, 1988; Touchton & Davis, 1991; American Council on Education, 1995b). Figure 1 illustrates that the number of women community college presidents has continued to increase at a steady and constant rate except for the two three-year intervals from 1984 to

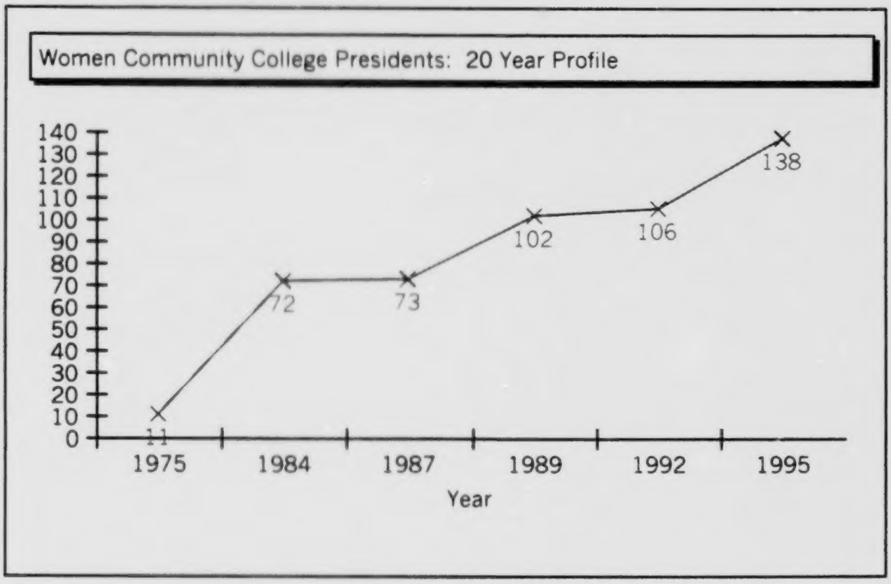

**FIGURE 1: WOMEN COMMUNITY COLLEGE PRESIDENTS**
**SOURCE: TOUCHTON & DAVIS (1991); AMERICAN COUNCIL ON EDUCATION (1995B)**

1987 and 1989 to 1992 for which there were minimal increases. One hundred thirty-eight women out of 905 public two-year institutions, 15%, hold presidencies (American Council on Education, 1995b). New data by Vaughan and Weisman (1997a) cite that women hold 18% of community college presidencies. The nation wide study of 1,512 administrators by Moore, Twombly, and Martorana (1985) contained: 193 presidents, 116 campus executives, 271 chief academic officers, 207 chief business officers, 221 chief student affairs officers, 117 head librarians, 92 directors of learning resources, 160 directors of financial aid, and 135 directors of continuing education. There were 323 women in the sample of which:

- 3.1% were presidents
- 9.5% (eleven) were campus executives

- 15.9% were chief academic officers
- 11.6% were chief business officers
- 15.4% were chief student affairs officers
- 34.4% were financial aid directors
- 29.6% were continuing education directors
- 41.3% were directors of learning resources
- 61.5% were head librarians

Most women headed traditional female departments: library, learning resource center, and financial aid.

Durnovo (1988) found that of the 294 women community college administrators in Texas: women served on all levels except as chancellors, women comprised 50% of the directors of which 30% were above the dean level and 20% below. Most of the women served in mid-management and the average number of women administrators per community college (49) in Texas was between one to five.

A summary of this section indicates that the literature is limited on women in community colleges. Based on the research that exists, as in four-year institutions, women comprise the majority of students in community colleges and women faculty receive tenure less than men. The number of women presidents in community colleges increased 555% from 1975 to 1984, going from 11 presidents in 1975 to 72 in 1984. New data on women presidents indicate that women hold 18% of all presidencies; other data show that the majority of women are in mid-level positions. The next section continues the discussion of women in community colleges, but specifically women in community colleges in North Carolina.

### Women in North Carolina Community Colleges

In North Carolina, Gardner (1977) first looked at the status of women administrators; soon thereafter, the North Carolina System of Community Colleges explored the participation of minorities and women in all of the community colleges. Women executive administrators increased from 14.9%, 108 out of 724, in 1975-76 to 18%, 129 out of 711, in 1978-79 (North Carolina Department of Community Colleges, 1980). These figures represent 1.9 and 2.2 executive women per institution in the two reporting years, 1975-76 and 1978-79. The second report, "*The Dawning of a New Century: North Carolina Community College System Comprehensive Plan for Administrative Leadership through Diversity Enhancement*", 11 years later by Deese and McKay (1991) expanded upon the first by offering suggestions, recommendations, and time lines for increasing the number of women and minorities in senior leadership positions.

Jones (1983) conducted a comparative analysis of men (171) and women (149) administrators in North Carolina and found: in the category of president, vice-president/dean of college, business manager/personnel, and instruction/curriculum that 28% were men and 10% female; most of the men were in continuing education or presidents while the women were in the learning resources/human resources and auxiliary services. Only one female was president and none served as vice-president/dean of the college. None of the males earned the lowest salary and none of the females earned the highest salary; most of the male administrators (54%) earned between $21,000 to $30,000 while 60% of the females earned between $15,000 to $24,000. Experience could possibly explain the salary differential: eighty-three percent of the females were in the three years or less category or 8-11 years category while 89 percent of the men were in the 8-11 to 20 or more years category.

In 1995, according to Gillett-Karam (1995), in the 34-year history of the community colleges in North Carolina, women held the post of president five times, three times in the past and two in 1995. The two female presidents were hired in August 1994 and July 1995 (Gillett-Karam, 1995); in 1998, the number of women presidents increased to three. More recent data on the status of female administrators in North Carolina from a survey sent to 1,140 men and women administrators in the 58 community colleges (Gillett-Karam, Smith, & Simpson, 1997) reveal that women comprise:

- 25.1% of the trustees
- 3.5% of the presidents
- 31.3% of the senior administrators
- 44.8% of the executives, administrators, and managers
- 50.3% of the full-time faculty
- 59.4% of curriculum students

Further analysis of the data show females serving in the following positions:

- executive vice president, 4 out of 17
- chief business officer 14 out of 47

- chief instructional officer, 10 out of 44
- chief continuing education officer, 5 out of 29
- chief student affairs officer, 14 out of 41
- chief administrative services, 1 out of 9
- chief resource development/planning, 11 out of 20
- chief personnel/human resources, 3 out of 5
- chief off-campus programs, 1 out of 3
- other positions, 13 out of 28

Furthermore, the data reveal that the higher the level the fewer the women: 20 women vice presidents to 60 men vice presidents, 41 women deans to 63 men deans, 19 women department heads to 5 men department heads, 164 women directors to 40 men directors, and 118 women other to 8 men other (Gillett-Karam, Smith, & Simpson, 1997).

The pattern continues with salary: $65,300 for the men vice presidents and $60,700 for the women, $51,860 for the men deans and $47,878 for the women, $45,000 for the men department heads and $38,000 for the women, $38,000 for the men directors and $37,000 for the women. The top three dissatisfiers for women were:

- salary (40%)
- ability to effect change (38.5%),
- climate for women (34.4%)

Men ranked salary as their top dissatisfier as well (25%), but the second dissatisfier was advancement opportunity (24.1%), women ranked this item 8th, and the third one was ability to effect change (20.3). Nearly three times more men than women desired to become presidents as women (40% to 14%), almost an equal number of men and women desired to become vice presidents (23.6%, 24.6%), a small number of men and no women desired to become associate vice presidents, 15.5% of the men desired to become deans in comparison to 27.2% of the women (Gillett-Karam, Smith, & Simpson, 1997).

In summary, this section highlights that women in community colleges in North Carolina are less likely to be presidents and vice presidents. Women have served as presidents six times in the history of community colleges in North Carolina, three in the past and three in the 1990s. They occupy mid-level positions of deans, department heads, and directors, and their salaries are lower than men which was the top dissatisfier for women as well as men. The next section discusses women in California Community Colleges.

### Women in California Community Colleges

Pfiffner (1976), who wrote the first extensive study on community college women in 1972 (Roberts, 1993), reported 26 women in the positions of president, superintendent/president, vice president or administrative dean, and associate or assistant dean in California Community Colleges. With 92 colleges in 1972, these women represented 4% of the administrators in the above positions (Roberts, 1993). A breakdown by Hemming (1982), who replicated Pfiffner's study in 1982, indicated that Pfiffner's study reported 2 presidents (2%), 8 full deans (3%), and 16 associate deans (5%) in the California Community College System in 1972.

In 1979, Wiedman (1979), reported 6 (4.8%) women chief executive officers, 8 (6.9%) women in the vice chancellor, assistant chancellor, assistant superintendent, vice president, or assistant to the vice president category, and 33 (10%) women in the provost or dean category. Moreover, Hemming (1982) reported that there were 5 (5%) women presidents, 30 (11%) full deans, and 61 (5%) associate deans; Roberts (1993) reported one extra dean in Hemming's study than Hemming (1982) reported, bringing the number of deans to 31 instead of 30. Patz (1989) indicated that 280 women were in these positions: 22 chief executive officers, 35 vice presidents, 118 deans, 38 associate deans, and 67 assistant deans.

Since 1972, the number of women administrators in the three top level positions (chancellors, presidents, superintendents; vice chancellors, vice presidents, full deans; and deans, associate, and assistant deans) in the California Community College System has increased exponentially, 1,112%, as figure 2 shows going from 26 in 1972, 97 in 1982, and to 315 women in 1992 (Roberts, 1993). Roberts' (1993) 315 women represented 32% of the top level administrators. Further analysis revealed 25 out of 106 (24%) level one administrators (chancellors, presidents, superintendents), 87 out of 298 (29%) level two administrators (vice chancellors, vice presidents, full deans) and 203 out of 578 (35%) level three administrators (deans, associate, and assistant deans).

Additionally, according to Anderson (1993), 33% of the 429 publicly elected trustees, and 38% of the 107 presidents of the academic senates were women. Moreover, according to the Fall 1996 staffing report (Policy Analysis, 1997a), women held 43% of the academic administrative positions and 44.9% of the classified administrative positions

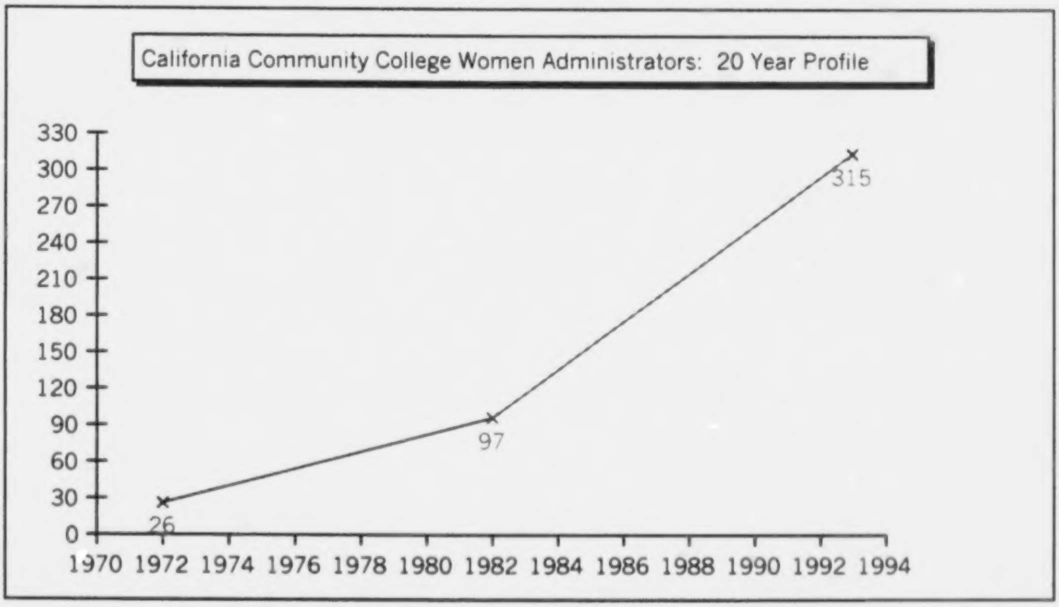

**FIGURE 2: CALIFORNIA COMMUNITY COLLEGE WOMEN ADMINISTRATORS**
**SOURCE: PFIFFNER (1976); HEMMING (1982); AND ROBERTS (1993)**
**NOTE: Statistics compiled by researcher indicates exponential growth**

in the 68 districts in California. Also, 50% and 48% of new certificated administrative new hires were women in fall 1994 and fall 1995, respectively; forty-eight and three tenths percent (48.3%) and 43.8% of classified administrative new hires were women in this same time period (Policy Analysis, 1997b). Moreover, Vaughan and Weisman (1997b) report that 25% of all female community college presidents are in California.

This section on women in community colleges in California suggest that, although initially there were few women administrators, they represent more than 25% of the top level positions of chancellors, vice presidents, and deans in the California Community College System. Also, more than 30% of the public trustees are women as well as more than 30% of the presidents of academic senates. The research implies an interest by women in the community colleges in California in their status as evidenced by the number of articles written by women in the system. Finally, according to Vaughan and Weisman (1997b), more women serve as president of community colleges in California than in any other state.

## **Summary**

The slogan "you've come a long way" indeed tells the story of the path traveled by women emerging from the private sphere of colonial America to mainstream job participation. Their participation in the workforce did not occur naturally; various social, political, legislative, technological, historical, and economical forces converged over time to pave the way. Four events specifically played important roles in women's acceptance into the work force: industrialization, World War I, the suffrage movement, and World War II. Of the four events, World War II illustrated to the world that with changed conditions women could perform just as well as men. By 1960, the public no longer rejected the idea that women could pursue vocational and educational goals comparable to men. However, in pursuing these goals women experienced widespread discrimination that required laws to ensure that their rights and privileges were not violated. These legislative laws enacted in the late 1960s and the 1970s prohibited pay, sex, race, and national origin discrimination.

Women can be seen in virtually every segment of the work force. They serve on the Supreme Court, hold political office, are in presidential cabinets, and are students in colleges and universities. Women outnumber men in undergraduate and graduate education, and receive more undergraduate and graduate degrees than men. These degrees still tend to be in female dominated fields like nursing, education, and library science.

As faculty members, women can be found more as assistant or associate professors than full professors. Also, they are less likely to be tenured and earn less money. Administratively, women are in staff positions instead of line and they are in mid-level positions in female departments. Women are less likely to be the chief executive officer of a four-year school or community college even though more women serve as chief executive officers in community colleges.

In California and North Carolina, Table 2 displays the percent of women in selected positions in these states. Specifically, in North Carolina, women have held the post of president six times, three in the past and three in the 1990s with the three hired since 1994 comprising 5.1% of the 59 presidents. Thirty-one and three-tenths percent (31.3%) are vice presidents and 39% serve as deans, directors, and department chairs, the typical position for women administrators in North Carolina. Additionally, 50.3% of the full-time faculty, 59.4% of the student body, and 25.1% of the trustees are women. In California, women comprise 24% of the chancellors, 29% of the vice chancellors, vice presidents, and full deans, 35% of deans, associate and assistant deans, 44% of full-time faculty, and 56.5% of the student body. Women also serve in significant numbers as trustees (33%), and presidents of academic senates (38%). In addition, more than 25% of all women community college presidents are in California.

**Table 2:** **Percent of Women Serving in Selected Positions in California and North Carolina**

| Selected Positions | California % | North Carolina % |
|---|---|---|
| Presidents<br>Chancellors | 24% | 5.1% |
| Vice Chancellors<br>Vice Presidents<br>Full Deans | 29% | 31.3% |
| Deans<br>Associate or Assistant | 35% | 39% |
| Trustees | 33% | 25.1% |
| Full-time Faculty | 44% | 50.3% |
| Students | 56.5% | 59.4% |

SOURCE: ANDERSON, (1993); GILLETT-KARAM, SMITH, & SIMPSON, (1997); POLICY ANALYSIS AND MANAGEMENT INFORMATION SERVICES DIVISION (1997A); ROBERTS, (1993)

## PURPOSE OF THE STUDY

The purpose of this study was to do a comparative analysis of several factors which influence pathways or career decisions of women administrators in the System of Community Colleges in North Carolina with women administrators in the California Community College System. These factors included demographics such as race and age, situational variables, and advancement variables. The women administrators selected represent academic administrators that include department chair or coordinator level administrators to the vice president for academic affairs, the chief instructional officer, or executive vice president in the North Carolina Community College System. In the California Community College System, the women administrators selected represent academic administrators that include department chair or coordinator level administrator to assistant president, assistant or associate superintendent, dean of the college, chief instructional officer, assistant or associate chancellor, or provost.

Career titles are not the same between the two systems and among colleges within the system; however, duties and responsibilities are the same. Also, the reason for using academic women in administrative positions is that analysis of career paths for upper level administrators in the presidential career line show the academic line as the most common path traveled (Epstein & Wood, 1984; Bernstein, 1984; Boggs, 1989; Puyear, Perkins, & Vaughan, 1990).

## SIGNIFICANCE OF STUDY

This study on factors influencing the career paths of women administrators in the North Carolina and California Community College Systems will be of interest to several audiences. Women administrators interested in advancement will be able to use this study as they refine their plans for career advancement. In addition, they will be able to use this study for counseling, mentoring, and role modeling of younger women entering community college administration.

In addition, this study will add to the paucity of research on women in community colleges in general as posited by Townsend (1993, 1995) and in particular in North Carolina. Moreover, the methodology of this study will feature the use of logistic regression that is used frequently in social work and the health sciences but less frequently in education.

Various policy makers will be able to use this study as a resource when making decisions and instituting and designing programs. Diversity coordinators, affirmative action officials, and equal employment opportunity officials will be able to use this study to make recommendations to the presidents of their institutions. Trustees and search committees will be able to use the study to better understand the issues confronting women administrators desiring to advance. And finally, directors of leadership institutes will be able to use the study to help shape the curriculum and goals of the leadership institute. California and North Carolina each have a leadership institute for women, Asilomar in California and the North Carolina Community College Leadership Program in North Carolina.

## ASSUMPTIONS

The following assumptions guided the research:

1. The laws in California for gender equality, especially Assembly bill 1725, have been more proactive.
2. Unions exist in California.
3. The political climate in California and North Carolina is different.
4. Strong leadership programs for women exist in California.

## LIMITATIONS

This study examined factors influencing career paths of women administrators in the North Carolina and the California Community College Systems. Because of this the following limitations should be noted:

1. The study's population is limited to two-year public community colleges in North Carolina and California. Results applied to other institutions and geographic regions should be cautioned.

2. This study focused on women administrators in the academic instructional track of community colleges and not continuing education and literacy, which are other teaching areas in the community college.

3. The data collected came from a cross-sectional survey and self reports from the women. Assumptions about other women should be cautioned.

4. The researcher did not select the names of women administrators in North Carolina. Presidents and/or their designees sent the names to the researcher. In California, the names that appeared to be women in the administrative units thought to be academic were selected from the 1998 Community College Directory published by the Community College League of California and the California Community Colleges Chancellor's Office.

5. The survey was administered in July and July ends the fiscal year during which people change jobs.

6. Geographic barriers existed for the researcher because California is about 3000 miles from North Carolina.

## DEFINITION OF TERMS

Terms used in this study are defined as follows:

1. **administrator**: a person who plans, coordinates, staffs, and/or supervises in an

organization (Yukl, 1994).

2. **androgynous**: having characteristics of both male and female (Webster,1992) .

3. **binary variable**: a variable that has only two outcomes such as advance or not advance or success or failure (Agresti & Finlay, 1997).

4. **career**: various levels and wages attained by the individual over the life cycle (Rosenfeld, 1980).

5. **career achievement**: the cumulative effect of position changes through which there is an increase in salary, status, and authority (Sagaria, 1988).

6. **career development**: "formation of a work identity or progression of career decisions and/or event as influenced by life or work experience, education, on-the-job training, or other factors" (Chartrand & Camp, 1991, p. 2).

7. **career development theory**: the body of theoretical research that attempts to explain career choice and career development (Hackett, Lent, & Greenhaus, 1994).

8. **career path**: sequential jobs that form career lines through which the individual moves from job to job (Spilerman, 1983).

9. **dummy variable**: an artificial independent variable that takes on the value of 1 or 0 (Agresti & Finlay, 1997).

10. **interaction**: "when the association between two variables changes as a third variable changes" (Agresti & Finlay, 1997, p. 369).

11. **leader**: a person who exerts influence on someone through some form of power and obtains agreement from those who are being influenced (Vasu, Stewart, & Garson, 1990).

12. **leadership theory**: the body of theoretical literature that undergirds and explains leadership behavior (Yukl, 1994).

13. **logarithm**: a mathematical function of the form:

$$y = \log_a x \text{, where } a \text{ is the base, } a \geq 0 \text{, and } a \neq 1$$

14. **logistic regression**: the statistical model used when the dependent variable is binary, has two outcomes like success or failure (Agresti & Finlay, 1997).

15. **manager**: a person who plans, coordinates, supervises, budgets, staffs, and carries out the policies and procedures of the organization (Zaleznik, 1977; Yukl, 1994).

16. **natural logarithm**: a mathematical function belonging to the logarithm family that has a base of "e" which is approximately equal to 2.718.

$$y = \log_e x = \ln x$$

17. **odds**: probability of success divided by the probability of failure (Agresti & Finlay, 1997, p. 270) or the number of events divided by the number of nonevents (Lottes, Adler, & DeMaris, 1996).

18. **odds ratio**: a measure of association; the ratio of two odds (Agresti & Finlay, 1997).

19. **organization**: "human beings working individually and in groups toward a goal in a system that has identifiable boundaries" (Vasu et al., 1990, p. 3).

20. **organizational theory**: the theoretical literature that explains how organizations function (Vasu et al., 1990).

21. **personal variables**: variables such as age, ethnicity, marital status, educational level, and number of children.

22. **situational variables**: variables such as gender of supervisor, number of years of administrative experience.

# CHAPTER 2

## LITERATURE REVIEW

The purpose of this study was to compare the career paths of women administrators in the North Carolina Community System with women administrators in the California Community College System. Chapter One discussed the problem and background to the study, listed the research questions, stated the purpose of the study, outlined the significance and limitations of the study, and defined the terms used in the study. This chapter is divided into four sections: organizational theory, leadership theory, career development, and appropriate studies on career development variables. At some point in time, the data becomes saturated and the researcher must stop the data search. This researcher stopped searching the data when these six review books on leadership, career development, women in higher education, women in management, women in the workforce, and community colleges contained no new research that was not in this researcher's possession: Dubeck and Borman's (1996) Women and Work: A Handbook; Fagenson's (1993) Women in Management; Bass' (1990) Bass & Stogdill's Handbook of Leadership: Theory, research, and managerial applications (3rd ed.); Hall's (1994) Career Development; Glazer, Bensimon, and Townsend's (1993) Women in Higher Education: A Feminist Perspective; and Ratcliff's (1994) Community Colleges.

The researcher searched every year in the four major databases: ERIC, Dissertations Abstract International, PsycInfo, and Sociofile. The following descriptors were used in various combinations to search the databases: women or female; administrator or manager or director; occupational aspiration; occupational mobility; higher education; community college or two-year institutions; and literature reviews. The most successful effort in obtaining data began with Larwood, Stromberg, and Gutek's (1985) review book titled Women and Work: An Annual Review. From this book the researcher looked at the references in the book, went to the stacks in the library to get books identified in the references and looked at the table of contents of other books and journals on the shelves in the same vicinity. Books and journals found in this manner continued to lead the researcher to relevant studies, books, and journals. Many of these journals and articles were management journals which used multiple variables in the research design. Other journals and books were from higher education; very few journals were community college journals. Higher education and community college journals mainly contained conceptual information.

Because the search process involves searching, finding, and/or copying, the researcher searched from home on the Internet using North Carolina State's databases. Searching from home using Telnet allowed the researcher to search longer and at anytime. Books and journals not found in D. H. Hill's Library at North Carolina State in Raleigh, NC were requested through interlibrary loan. Some journal articles came from out of North Carolina and the United States.

An overview of the research illuminates that the differences between men and women as leaders are minimal. However, the model of leadership is still a male model of leadership. Northcraft and Gutek's (1993) article "Point-Counterpoint: Discrimination Against Women in Management-Going, Going, Gone or Going But Never Gone?" suggests that family responsibilities still belong to women and organizational variables like differential training for men and women also exist. They further add that these organizational barriers will prevail until legislation intervenes to stop them from happening; however, effective legislation has not occurred. In discussing this literature review, the concept of an organization will serve as the frame of reference.

## ORGANIZATIONAL THEORY

An appropriate beginning point is the definition of an organization. In the text titled Organizational Behavior and Public Management, Vasu, Stewart, & Garson (1990, p. 3) define an organization as " . . . human beings working individually and in groups toward a goal in a system that has identifiable boundaries". Organizational theory is the theoretical underpinnings used to study how organizations function (Vasu et al, 1990). The origin of the modern organization and many management practices have their roots in the history of railroads (Vasu et al., 1990). During the turn of the century when organizations were rapidly forming, especially railroads, management needed an efficient and rational method of bringing order and consistency to the organization.

This era of organizations is called the classical era (Vasu et al., 1990). According to Vasu et al. (1990), six schools of thought exist on how organizations function with each school evolving in response to issues at that time. The six schools of thought and key ideas and people from each school will be briefly discussed. As mentioned previously, the first school of thought is the Classical Approach. The classical approach to management focused on goals and increasing worker output. Frederick W. Taylor, often called the father of scientific management, used time and motion studies to increase worker productivity and efficiency. Taylor believed that workers should be scientifically selected and trained for work, the job should be analyzed scientifically, cooperation between the worker and supervisor would minimize deviations from the scientific method, and management and workers share responsibility in the production of the product. While Frederick Taylor focused on increasing worker productivity, Henri Fayol concentrated on increasing the efficienty of the manager. Fayol believed that management consisted of five functions: planning, organizing, commanding, coordinating, and controlling.

The second management school of thought is the Human Relations Approach which evolved as a result of management being insensitive to the needs of the worker (Kreitner, 1992). The Human Relations Approach focused on the needs of the worker and two key people worth mentioning with this school of thought are Elton Mayo and Mary Parket Follett. The Human Relations Approach began with the famous Hawthorne Studies conducted by Harvard Professor, Elton Mayo at Chicago's Hawthorne Western Electric Plant in 1924. Dr. Mayo wanted to know why one group of worker's productivity increased in spite of less than satisfactory conditions. What Dr. Mayo and his team of researchers discovered was that the social relations between the workers and their supervisors were more important than the physical environment (Vasu et al., 1990; Kreitner, 1992).

Mary Parker Follett believed that understanding the total needs of the worker provided the foundation by which management could motivate the worker to increased productivity. She believed that workers could not be forced to increase productivity but motivated through an understanding the needs of each worker.

Closely related to the Human Relations Approach is the Neo-Human Relations

Approach which still has as its focus the needs and interpersonal relationships of the worker but adds another dimension: the role of the organization in shaping the worker (Vasu et al., 1990). Two management scholars in this school of thought are Abraham Maslow and Douglas McGregor. Maslow believed that human needs formed a hierarchy of expression beginning with the lowest physical needs, safety needs, affiliative needs, esteem needs, and self-actualized needs, which is the highest need. The lowest needs have to be satisfied before the individual can focus on higher order needs.

Douglas McGregor posited that management in organizations is dictated by the manager's beliefs about work and the worker (Vasu et al., 1990). McGregor labeled these theories Theory X and Theory Y. Management that uses Theory X as guiding principles believes that the worker is lazy and passive and that all decisions should come from management. McGregor believed that management shaped the behaviors of the workers and made them lazy and passive. He posited a different theory, Theory Y. The guiding principles of this theory are that workers are capable of setting their own objectives and that the role of management is to create an environment conducive for this to occur.

The classical approach to management focused on the work, the human relations approach targeted the worker, and the neo-human relations approach emphasized finding a common ground between the organization and the worker. The fourth school of thought, Decision-Making Approach, has as its core the decision made by the manager (Vasu et al., 1990). The chief management scholar of this period was Chester Barnard. Chester Barnard conceptualized the organization into two parts, the formal and the informal, and that knowledge of both are necessary in order to make decisions (Kanter, 1980; Vasu et al., 1990). The formal organization consists of the policies, procedures, and structures of the organization; in contrast, the groups and friendships dominate the informal world. Barnard believed in allocating resources and rewards to workers in order to enlist their support of organizational objectives. Barnard furthered believed that executive personnel selection went beyond formal competence and included fit-eduation, personality, and values (Vasu et al., 1990, p. 30).

Cyert and March and Herbert Simon (Vasu et al., 1990) furthered Barnard's work by hypothesizing that organizations are systems and decisions made should be filtered through the lens of rationality, efficiency, and productivity. The fifth management school of thought is the Systems Approach. According to Kreitner, (1992) a system is the sum of the parts of an organization-structural, social, environmental, and personal. Two types of systems exist, closed and open. A closed system does not take in information from its environment; in contrast, an open system needs the environment in order to be successful.

Finally, the sixth school of thought is the Bureaucratic Politics Approach. All discussions of bureaucracies begin with German scholar Max Weber (Vasu et al., 1990). Max Weber's work centered on why people submitted to authority and the role bureaucracies exerted in the process. According to Weber, three types of domination exists: charismatic domination, traditional domination, and legal domination (Vasu et al., 1990). With charismatic domination, personal charisma helps the leader to enlist follower support. People submit to tradtional domination because the leader has formal authority through position and to legal domination because the leader obtained authority through the legal system which they perceived to be fair.

A second interest of Weber was the idea of machine like bureaucracies (Kreitner, 1990). Weber assigned the label "bureaucracy" to the most rational and efficient organization. According to Weber, a "bureaucracy" has a division of labor, hierarchy of authority, a framework of rules, and impersonality (Kreitner, 1990, p. 250).

This section discussed the guiding principles and ideologies of organizations. The beginning of the section defined an organization: human beings working individually and in groups toward a goal in a system that has identifiable boundaries (Vasu et al., 1990, p. 3). The subsequent parts of this section explored the six schools of thought undergirding how organizations function. The classical approach focuses on goals and worker productivity and two scholars in this era were Frederick W. Taylor and Henri Fayol. Frederick W. Taylor is the father of scientific management and Henri Fayol postulated five functions of mangement: planning organizing, coordinating, control, and commanding. Believing that the classical approach neglected the needs of the worker, the human relations approach posited that the social environment is important in achieving organizational goals. The human relations approach started with the Hawthorne Studies at Western Electric in Chicago by Dr. Elton Mayo. The neo-human relations approach incorporated the works of Abraham Maslow, who developed five hierarchy of needs, and Douglas McGregor who postulated in his Theory X and Theory Y beliefs that the organization shapes the psychology of its workers.

Chester Barnard did not focus on the organization or the worker in his unit of analysis of organizations. Barnard believed that the "decision" of the manager should be the unit of analysis. In making decisions, the formal structure of rules, policies, and procedures as well as the informal structure of group relations and interpersonal relationships should play a role in making decisions. Furthermore, Barnard believed that executive personnel should fit with the executive of the organization.

Cyert and March and Simon advanced Barnard's concept of decision-making to the idea of decision-making in systems. A system is the collection of parts that work interdependently together. Two types of systems exist, closed and open. A closed system does not take in input from its environment; in contrast, an open system needs the environment in order to survive.

Max Weber's bureaucracies is the last school of management thought. Why people submitted to domination intrigued Weber which he later classified into three types of domination. People submit to charismatic domination because of the charisma of the leader, to traditional domination because of the authority of the individual, and to legal domination because they perceive as fair and legal how the leader obtained authority.

## LEADERSHIP THEORY

The previous section discussed the six schools of thought used in understanding how organizations function--the classical approach, the human relations approach, the neo-human relations approach, the decision-making approach, the systems approach, and the bureaucratic-politics approach. Parallel to understanding how organizations function is also understanding how organizations accomplish their goals and how effectiveness is achieved as well in the process. Hence the focus shifts to leadership in organizations. The beginning point of this section is the definition of leadership.

According to Yukl (1994), multiple definitions of leadership exist but no agreement on a single definition. As a matter of fact, Yukl (1994) states that there is almost a one to one correspondence between the definition of leadership and the number of researchers who have studied leadership. Using a broad definition of leadership, Yukl (1994, p. 4) defines leadership as:

> influence processes affecting the interpretation of events for followers, the choice of objectives for the group or organization, the organization of work activities to accomplish the objectives, the motivation of followers to achieve the objectives, the maintenance of cooperative relationships and teamwork, and the enlistment of support and cooperation from people outside the group or organization

While a plethora of definitions exist of leadership, four major categories frame most of the leadership research: the trait approach, the behavior approach, the power-influence approach, and the situational approach (Vasu, Stewart, & Garson, 1990; Yukl, 1994). Each school of thought will be detailed briefly along with how the theory perceives women.

Thus, three goals exist for this section: 1) to detail the four schools of thought on leadership; 2) to illustrate how the governing principles of the organization--the six schools of thought on how organizations function--and leadership exercised in the organization are interdependent and 3) to integrate in the discussion appropriate studies of women and leadership in order to highlight how research on women and leadership have been examined intensely; and consequently the literature about women and leadership has evolved reflecting the growing importance of women as leaders.

**Trait Approach**

According to Bensimon (1994), Taylor (1994), and Yukl (1994), trait theory is the earliest of the leadership theory. Bensimon (1994) further adds that the trait theory is also the most primitive. Trait theory, which emerged during the 1930s and 1940s, compresses leadership into individual characteristics of the leader. The typical image of a manager has masculine traits: he is competitive, aggressive, dominant, firm, vigorous, self-confident, directive, independent, objective, tough, enterprising, individualistic, and rational (Carroll, 1972; Epstein, 1974; Nieboer, 1975; Terborg, & Ilgen, 1975; Terborg, 1977; Brown, 1979; Weber, Feldman, & Poling, 1981; Elder, 1984; Cimperman, 1986; Dipboye, 1987; Hackman, Furniss, Hills, & Paterson, 1992; Bass, 1990; Sandler, 1993; LeBlanc, 1993; Warner & DeFleur, 1993; Lee, 1994; Booth & Scandura, 1996; O'Toole, 1996). In contrast, this same model depicted women as reductionist; they were frivolous, emotional, irrational, jealous, vain, dependent, submissive, best suited for routine or home related tasks, not competitive, an anomaly, not competent, values social skills, person oriented, intuitive, unambitious, passive, nurturing, indecisive, gentle, helpful, understanding, employee centered, and sensitive (Carroll, 1972; Epstein, 1974; Terborg & Ilgen, 1975; Goerss, 1977; Brown, 1979; Martin, Harrison, & Dinitto, 1983; Swoboda & Vanderbosch, 1983; Hackman, Furniss, Hills, & Paterson, 1992; Booth & Scandura, 1996). In other words, a dual model of traits evolved; women did not possess the requisite leadership skills.

Schein (1973) sampled 300 male middle managers within nine insurance companies and 167 female managers (Schein, 1975) in the same industry, and found managerial competence synonymous with male characteristics. Schein hypothesized that maybe the women denied their own competence in order to advance in the organization because the organization looks favorably on women who believes as it does--women are not qualified to manage. Heilman (as cited in Cleveland, 1996) replicated Schein's study in the late 1980's and obtained the same results--skills associated with managerial success are perceived to be more associated with men than women.

The 100 women in Hennig's study (as cited in Schein, 1975) also ascribed to the male prototype of manager. Schermerhorn et al. (as cited in Brown, 1979) sampled MBA students and found that males equated the manager as having masculine characteristics while the females visioned the manager as balanced.

Several consequences of organizations ascribing to the trait theory of leadership are the negative attitudes directed towards women by men as well as by other women, and discrimination in the form of lower salaries and lower levels in the organization. Brown (1979) and O'Leary (1974) cited a 1965 Harvard Business Review survey in which 51% of the 2000 executives believed that  women were unfit to manage. Attitudes are not hindered by age; two hundred undergraduates and 300 executives in Basil's (as cited in Brown, 1979) survey believed that women should not be in management. Men MBA students who had not received job offers were more negative towards women in management than those who had worked according to Fukami (as cited in Brown, 1979). In a sample of 180 men and 100 female employees in an international distributing firm, Peters, Terborg, and Taynor (as cited in Brown, 1979), using the Women as Manager Scale, observed that education, support of the women's movement, and high income level mediated favorable attitudes towards women as managers. Bowman (as cited in Terborg,

1977) noted that anticipated resistance from coworkers, men and women, caused capable women to not get jobs as managers.

Brown (1979) quoting Kanter and Cronin and Pancrazio (1979) state that some successful managerial women-Queen Bees- are not helpful to other women seeking to rise in the organization. Moreover, these women deny their own social group and take on male attitudes (Berry & Kushner, 1975; Diamond, 1979) in order to prove their loyalty to the dominant male managerial group. This behavior is not unique to women but to people who are different and desire to identify with the majority group (Jones, 1986). Illustrations can be found in Jones' (1986) examples of ethnic groups like Blacks, Jews, and Italians who try to be less Black, less Jewish, and less Italian. In interviewing women on the verge of being chief executive officers, Billard (1990) pointed out that some women did not participate in the study because they were not interested.

In addition to experiencing resistance by coworkers, according to Brown (1979), women also experienced financial loss because they were offered lowered salaries to prevent them from joining an organization. If they joined the organization and were perceived to be competent, the women were punished socially as well as professionally. Further illustration of punishment of women by men in organizations is offered by Schein (1973) who proffers that men punished successful women and were not accepting of them. Moreover, Schein (1973) postulates that if successful behavior by women is deviant from other women in the organization, then punitive behavior from men occurs; otherwise, this is not the case, which emphasizes that this situation is contextually based (Schein, 1973). Concurring, Geis, Carter, and Butler (1982) posit that intellectual competence is a male image while failure is a female image. They further suggest that competent women are disliked and rejected because they violate expected stereotypes.

Stewart and Gudykunst (1982) found a positive correlation between number of promotions and hierarchical level for men managers. Although women received more promotions than men in this study, they were still located in lower positions in the organization.

Blau and Ferber's 1985 study (as cited in Olson & Frieze, 1987) found women in the lower ranks in the civil service. Prior to 1964, employers made no secret about their choice of sex and race (Reskin & Hartmann, 1986). Epstein and Rossiter's (as cited in Reskin & Hartmann, 1986) studies enumerated examples of discrimination in which women lawyers and scientists were offered jobs as legal secretaries and chemical librarians. Harkess (1985) review of 34 studies from all occupational categories reiterated the point of men taking the higher prestige jobs which carry higher pay even though women's skills were comparable to the men's.

Fernandez's (as cited in Dipboye, 1987) survey indicated that 34% of managers believed that female managers were placed in positions with no future. Likewise, Rosen, Templeton, and Kichline (as cited in Dipboye, 1987) discovered from a survey of 117 female and 117 male managers, a few years after their MBA, that women's assignments did not foster social networks like the men's.

Goerss (1977) notes that women administrators in education, too, did not fit "the" model of leadership established in a world where only men were in positions of leadership. In a study by Bowman (as cited in Goerss, 1977) of women in leadership positions, 75% of the women administrators disagreed that women had to be like men, 50% of the men disagreed. Also, these women disagreed with the stereotype of women being temperamental.

As mentioned in the section on women in higher education, Moore's (1982a), Konrad and Pfeffer's (as cited in LeBlanc, 1993), and Jones' (1993) studies revealed also that women were in the lower levels of the organization. The patterned continued in community colleges in general with Durnovo's (1988) study and in North Carolina in particular with Gardner's (1977), Jones'(1983) and Gillett-Karam et al. (1997) study.

Female community college presidents told Vaughan (1989a) that they were not viewed as being tough enough and trustees wondered about their control over the faculty. Amey and Twombly (1992) argue that not only are the images of leaders in community colleges of men but that the male model of leadership is perpetuated by writers in the literature. Amey and Twombly (1992) cite Epstein who suggests gender differences are based on perceptions rooted in the sociology of the relations of men and women.

This section reviewed the first theory on leadership, the trait theory. The trait theory espoused that leadership effectiveness depended on qualities of the leader like rationality, dominance, and initiative, etc. This theory evolved during the classical era of managerial thought which viewed the organization as rational, productive, and efficient. As a consequence of the male model of leadership, women entering organizations experienced negative attitudes toward them from both men and women, were offered lower salaries to prevent them from joining the organization, and if they did join the organization, they joined at low levels, and some experienced punishment if they violated the stereotype of not being incompetent.

After years of research, using traits failed to distinguish between effective and ineffective leaders (Brown, 1979; Taylor, 1994; Yukl, 1994). Consequently, researchers began looking at behaviors and the use of power utilized by leaders. Before ending this section, several key observations are necessary: 1) the trait theory began in the approximate time period of the classical approach to management which dealt with rational, efficient, and productive organizations; 2) this researcher's review of early leadership studies reviewed by Bass (1990) did not mention the word **female**, **gender**, or **woman**; and 3) in the 1920s and 1930s women comprised only 20.4% and 21.9%, respectively, of the labor force (Marshall & Paulin, 1987) and only 7% of the managerial jobs (Alpern, 1993). Thus, the only models of leadership were men at that time period in history. The next section looks at the behavior approach to leadership.

### Behavior Approach

The trait approach focused on the traits of the leader; in contrast, the behavior approach examines what the leader does. According to Vasu et al. (1990), three types of behaviors are identified with the behavior approach: participatory management, task-oriented and people-oriented skills, and instrumental behaviors. Participatory management employs a democratic form of governance; task-oriented skills stresses getting the job done; people-oriented skills accentuates skills of trust, warmth, concern, and respect; and instrumental behaviors are behaviors utilized by the leader to help the employee obtain desired goals and rewards. Various forms of these behaviors are apparent in Yukl's (1994) taxonomy of the major research on leadership behavior:

1. Making decisions: planning, problem solving, consulting, and delegating

2. Giving-seeking information: informing, clarifying, and monitoring

3. Building relationships: networking, team building and conflict management, developing and mentoring, and supporting

4. Influencing people: rewarding, recognizing, and motivating and inspiring

Studies show that there are no differences between effective behaviors utilized by men and women leaders. Osborn and Vicars (as cited in Brown, 1979) note that there is no difference between leader behavior and employee satisfaction when demographics are controlled.

In addition, Donnell and Hall (1980) sampled 1,916 managers, 950 females and 966 males, on five dimensions of managerial achievement:

1. Managerial philosophy: beliefs and values that underlie and shape the individuals approach to the management process

2. Motivation dynamics: manager's motivational needs, the effects on management incentives, and the effects on subordinates

3. Participative practices: the degree to which subordinates feel managers are sensitive to needs and include in the decision making

4. Interpersonal competence: do managers deal honestly and effectively in managerial transaction

5. managerial style: attention to people and production

In each category, there were no significant differences. Dipboye (1987) records no difference between men and women in their orientation to task or people. Likewise, the

Center for Creative Leadership tested thousands of managers and professionals from 1978 to 1986 to assess their personality dimensions, intelligence, and behaviors in problem solving; they found men and women similar on most measures (Curcio, Morsink, & Bridges, 1989).

In brief, the behavior approach to leadership consists of three behaviors believed to identify effective leaders: participatory management which means using democratic governance; use of task-oriented skills which aids in getting the getting the job completed and use of people-oriented skills which accentuates trust, respect, caring, and warmth; and instrumental behaviors used by the leadership to help employees obtain rewards and goals.

As with the trait approach, the behavior approach looked for simplistic means to identify effective leaders (Yukl, 1994) which proved futile (Vasu et al., 1990). Researchers realized that not only were traits and behaviors important in understanding effective leadership but that the situation or context as well. The next theory of leadership examines the contingency approach or situational approach to leadership.

### Contingency Approach

The fundamental thought of the contingency approach is that the situation dictates what leadership pattern is necessary for the given situation (Vasu et al., 1990). Fred E. Fiedler authored the best known contingency theory (Vasu et al., 1990) which postulated that outcomes are dependent upon the control and influence that the leaders have of the situation (Vasu et al., 1990). Specifically, leader performance depends on two factors (Kreitner, 1992, p. 464):

1. the degree to which the situation gives the leader control and influence
2. the leader's basic motivation--that is, whether the leader's self-esteem depends primarily on accomplishing the task or on having close supportive relations with others

From this theory, Fiedler uncovered two patterns: 1) task-oriented leaders are effective in situations in which they have very little control or a great deal of control; 2) relation-oriented leaders are effective in moderate situations (Kreitner, 1990).

A second contingency theory, the path-goal theory states that effective leaders explain the job thoroughly to subordinates, demonstrate how rewards can be obtained by accomplishing organizational objectives, and by explaining the process by which the rewards can be obtained (Kreitner, 1990). And finally, the third contingency model originates with Vroom-Yetton-Jago's decision-making model. In this model, based on the situation a particular decision-making style should be used by the leader. The leader should be **directive** when subordinate tasks are ambiguous; should be **supportive** when subordinates are working on stressful or frustrating tasks; should be **participative** when subordinates' egos are involved in tasks that are not repetitive; should be **achievement-oriented** when subordinates are working on ambiguous tasks that are not repetitive (Kreitner, 1990).

Contingency leadership theorists believe that leadership is not one dimensional as described by the trait and behavior approach but multidimensional. The leader develops a profile of the situation, his/her subordinates, and a knowledge of him/herself in judging how best to deal effectively in the situation. However, Vasu et al. (1990) lament that the multitude of variables to consider in the contingency theory almost renders the theory impractical for use.

Closely related to contingency theory is the power-influence approach; this theory will be explored next.

**Power-Influence Approach**

The contingency approach examined leader influence in bringing about desired goals in different situations and the power factor was subtle and informal, not so with the power-influence approach. Influence as defined by Yukl (1994, p. 194) is " . . . the effect that one has on another"; on the other hand, power " . . . is the ability to influence decisions, events, and material things" (Yukl, 1994, p. 195). French and Raven's taxonomy of power frames the discussion in this section (Kreitner, 1992, p. 456) and will be briefly detailed. According to French and Raven (Kreitner, 1992), five bases of power exist:

> **reward power:** the ability to grant rewards like merit pay, raises, and promotions in exchange for compliance
>
> **coercive power:** power which is based on threats, fear, and punishment
>
> **legitimate power:** power which comes from having the formal authority to make a request
>
> **referrent power:** power which comes from identifying with the leader because of certain qualities or characteristics
>
> **expert power:** power which comes from having information that others need

Studies of women and power demonstrate no differences from men in their use of power.

Brown (1979), Miner (as cited in Chusmir, 1986), and Morrison and Von Glinow (1990) report that men and women are similar in motivation to manage. Dipboye (1987) found no difference between men and women in their use of power or influence and participation.

Chusmir (1986) used the Thematic Apperception Test and the balanced-as-to-sex Thematic Apperception Test for 124 respondents. The findings demonstrated that women had higher needs for achievement than men as well as for power. The women did not have higher needs for affiliation as expected; affiliation needs for both were similar. This further disproved that women managers have greater affiliation needs than men. Harlan and Weiss (as cited in Dipboye, 1987) compared 50 male and 50 female managers on comparable levels of responsibility and functional area and the results showed both groups to be high in power, achievement motivation needs, self-esteem, and motivation to manage. In higher education, Berrey (1989) reveals that women have some anxieties about power that is rooted in increased visibility, making tough decisions, dealing with conflict, being abandoned, and risk taking.

This section discussed the leadership theory: power-influence theory. Influence is having an effect on another; power is the ability to influence. According to French and Raven, there are five bases of power: reward, coercive, legitimate, referrent, and expert power. Studies of women and leadership show no differences between men and women and their use of power.

Parallel with the conclusion that men and women manage similarly, Sandra Bem advanced the idea of "androgyny"-combination of male and female traits (as cited in Hackman, Furniss, Hills, & Paterson, 1992; as cited in Blum & Smith, 1988). Good leaders display a combination of male and female traits (Cimperman, 1986) which are detailed in Alice Sargent's book, The Androgynous Manager (Blum & Smith, 1988). The next section briefly examines transformational leadership.

### Transformational Leadership

Androgyny signaled a beginning shift in leadership paradigm; researchers began discussing transformational and charismatic leadership; leadership that emphasizes natural qualities of females (Rogers, 1988; Shavlik & Touchton, 1988; DiCroce, 1995; Getskow, 1996). Burns (as cited in Yukl, 1994) posited that transforming leaders engage followers to merge their goals with the goals of the organization. With transforming leadership, leadership is not hierarchical and takes place on all levels by all people. Followers of transforming leaders are motivated to higher levels of commitment.

Bass (as cited in Yukl, 1994) refined the ideas of Burns (as cited in Yukl, 1994) and advanced the idea of transformational leadership. Four components comprise transformational leadership as developed by Bass (as cited in Yukl, 1994): charisma, intellectual stimulation, individualized consideration, and inspirational motivation. Ironically, Mary Parker Follett, management consultant, in the 1930s and 1940s espoused some of the ideas of transformational leadership (Taylor, 1994; Nelton, 1997). Some sayings of Mary Parker Follett in Mary Parker Follett-Prophet of Management, include (Nelton, 1997, p. 24):

> Moreover, we find leadership in many places besides [the] more obvious ones... The chairman of a committee may not occupy a high official position or be a man of forceful personality, but he may know how to guide discussion effectively, that is he may know the technique of his job, ... I think it is of great importance to recognize that leadership is sometimes in one place and sometimes in another.
>
> When leadership rises to genius, it has the power of transforming ... [the

> group's] experience into power. And that is what experience is for, to be made into power. The great leader creates as well as directs power.

Management leaders rejected Follett's ideas during her lifetime; now they say she was years ahead of her time (Nelton, 1997).

Hackman, Furniss, Hills, and Paterson (1992) administered Bass' Leadership Questionnaire and Bem's Sex-role Inventory to 82 women and 71 men in the first stage of a management course at New Zealand Polytechnic. They found transformational leadership to be associated with both females and males. The women in Rosener's (1990) International Women's Forum survey displayed more transformational leadership style-getting subordinates to merge their goals with the goals of the organization. In addition, the women encouraged participation, shared power and information, made people feel good about themselves, inspired, and motivated.

Gillett-Karam's (1994) chapter "*Women and Leadership*" in the book titled A Handbook on the Community College in America investigated transformational leadership within the community college system by sampling the 256 leaders, 235 men and 21 women, from Roueche, Baker, and Rose's 1989 study. Of the five cluster dimension of transformational leadership: vision, people orientation, motivation orientation, empowerment, and values orientation, both groups cited vision as the single most important concept. Factors significant for women were: risk taking, caring and respecting, acting collaboratively to bring about change, and building openness and trust; while factors significant for men were giving rewards contingent upon behavior, and influencing. The women in Baker's (1996) and Griffin's (1997) study also revealed a pattern of transformational leadership.

DiCroce, (1995, p. 82) lauding the female ethos as a viable leadership style, notes that Auburdene and Naisbitt's 1992 Megatrends for Women uses the term "women's leadership" which consists of 25 leadership behaviors with six clusters: (a) empower: reward; (b) restructure: seek to change instead of control; (c) teaching: facilitate; (d) role model: act as role models; (e) openness: cultivate a nourishing environment for growth, reach out rather than up or down; and (f) questioner: women ask the right questions. DiCroce (1995) and McGrath (1992) both cite Helgesen who proffers the concept of the "web of inclusion" undergirded by empowerment, relationships, and human bonds.

Transformational leadership combines the concepts of all the leadership theories. Transformational leadership takes place on all levels and the leaders engage the followers to merge their goals with the goals of the organization. Five clusters undergrid transformational leadership: vision, people orientation, motivaton orientation, empowerment, and values orientation.

Transformational leadership concepts match the concepts 1990s researchers believe are the requisite skills needed for leaders to manage organizations in the 1990s; these skills have been identified as feminine and transformational (Rogers, 1988; Curcio, Morsink, & Bridges, 1989; Rosener, 1990; McGrath, 1992; Gillett-Karam, 1994; Lee, 1994; DiCroce, 1995; Getskow, 1996; Nelton, 1997. One final observation on leadership before ending the leadership discussion is the ongoing debate about the difference between managers and leaders.

## MANAGERS AND LEADERS

According to Zaleznik's (1977) article "*Managers and leaders: Are they different?*", managers and leaders differ in their goals, careers, relations with others, how they view the world, motivation, and personal history. The organization drives managerial goals and managers respond passively towards these goals, not changing anything and accepting what has been done in the past. In contrast, leaders try to shape and influence goals by presenting ideas, suggestions, pictures, and arguments. Managers work at keeping the organization in balance and harmony which means they are politically correct and tell people what they want to hear; they don't like to deal with conflict or chaos. On the other hand, leaders use conflict and chaos to generate ideas and new ways of operating. Agreeing, Kotter (1990) theorizes that coping with chaos and being a leader are interdependent for leadership is fluid and dynamic while management is static. As a matter of fact, Wallin and Ryan (1994) conjecture that leaders of the next century must deal with chaos as the norm instead of the exception. Dealing with chaos involves an element of risk taking so quite naturally leaders are risk takers (Zaleznik,1977).

Managers like to surround themselves with people but their level of emotional involvement is low and they focus on how to get things done instead of identifying the significance of events and situations to the people involved. Leaders are sensitive, empathetic, and intuitive. Managers get their sense of self from conforming to the goals of the organization; leaders travel an individual path (Zaleznik, 1977).

Leavitt (1988) uses the term "pathfinders" for visionary managers. These managers focus on people's hearts instead of their brains in influencing them to cooperate. Pathfinders know that pride and ambition persuade employees to increase productivity. Leavitt (1988) says that pathfinders are charismatic leaders who can get others to join in; they pay attention to the emotions surrounding situations as well as the individual. Pathfinders are proactive, divergent in their thinking, and problem solvers.

Green (1988) says that managers maintain the bureaucracy while leaders shape it. According to Max Weber (as cited in Green, 1988), charismatic leaders do not conform to the organization. Mayhew (as cited in Green, 1988) believes that managers only see the givens of a particular situation whereas leaders see the givens and the possibilities. Argyris and Cyert (as cited in Green, 1988), advance that leaders are able to get subordinates to merge their goals with the goals of the organization.

Kouzes and Posner (1990) posit that five themes frame leadership: leaders challenge the process, inspire a shared vision, enable others to act, model the way, and encourage the heart. Leaders challenge the process by searching for opportunities, and taking risks and experimenting. Enlisting others and envisioning the future facilitates a shared vision. By strengthening others and collaborating, others become empowered to action. Leaders model the way by setting examples and planning small wins. And finally, leaders touch the heart by recognizing individual contributions and celebrating accomplishments.

In brief, historically, managers are a by-product of the industrial era and the early formation of organizations (Kotter, 1990; Vasu, Stewart, & Garson, 1990; Osborne & Gaebler, 1992). Managers maintain the status quo, are static, and do things right. On the other hand, leaders are dynamic and do the right things. Leaders are risk-takers, thrive on change and chaos, and espouse traits similar to transformational leaders. The next section looks at the career development of women.

## CAREER DEVELOPMENT

This section on career development begins with the definition of career, which are many. Becker and Strauss (1956) hypothesized that a career is the flow of people through the organization; Schein (1971) believes a career is the interaction between the individual and the organization; Rosenfeld (1980) argues that careers are the various levels and wages attained by the individual over the life cycle; and Weber (as cited in Gaertner,1980) conceptualized careers in context with the bureaucracy: ordered positions and known responsibilities. Gaertner (1980) and Twombly (1990) assert that careers are a by-product of socialization and training. Spilerman (1983) affirms that careers are sequential jobs that form career lines through which the individual moves from job to job; Gutek and Larwood (1987) believe the adult life cycle define career; in higher education, Sagaria (1988) proffers that careers are the cumulative effect of position changes through which there is an increase in salary, status, and authority.

Careers are structures of the organization and as such have entry and exit points, are part of a career system that develops and moves members upward (promotion); this movement is characterized by more responsibility, rewards, and prestige (Gaertner, 1980; Spilerman, 1983; Twombly, 1986; Twombly, 1990). Gaertner (1980) adds that some careers have an assessment position as well. Chartrand and Camp (1991) view careers as twofold: stages through which the individual progresses and the process of going through the stages. Career development theory is the body of literature that provides the theoretical foundation for understanding careers. The next section gives an overview of career development theory.

**Career Development Theory**

In two reviews of career development, Chartrand and Camp's (1991) article "*Advances in the Measurement of Career Development Constructs: A 20-Year Review*" and Hackett, Lent, and Greenhaus' (1994) *chapter "Advances in Vocational Theory and Research: A 20-Year Retrospective*" in the book titled Career Development acknowledge that career development theory is evolving and expanding. The dominant career development theories are still trait and factor, Holland's typological theory, and developmental. career theory. However, the research now includes "diverse areas" (Chartrand & Camp, 1991, p. 1) such as women's career development and the influence of organizations. The dominate theories will be presented first, followed by women's career development and the influence of organizations. The final discussion centers around various perspectives that 1990s researchers use to examine career development.

The first theory discussed will be the trait and factor theory. The trait theory originated with Parsons (Hackett et al., 1994) and paired occupational interests with personality traits (Julian, 1992). The use of intelligence testing, aptitude testing, and interest inventories is believed to originate from Parsons concepts. A criticism of Parsons' theory was its focus on content and not process and by 1971 his theory was in decline (Hackett et al., 1994).

The second theory is Holland's typological theory. With the decline of Parsons' theory, Holland's theory began receiving attention (Hackett et al., 1994). Holland's theory matches six personality types with six environments (Julian, 1992). Holland hypothesized that the satisfaction, stability, and achievment of the workers could be predicted from the personality types (Julian, 1992). Personality types listed in Holland's typology are realistic, artistic, investigative, social, enterprising, and conventional (Julian, 1992). Holland posited that 1) individuals in environments matching their personality type would be satisfied and less likely to change and 2) individuals in incongruent environments would adapt (Julian, 1992).

The third theory is Super's developmental theory which was the most influential theory in 1971 (Hackett et al., 1994). Super incorporated the concepts of vocational maturity, career exploration, and self-concept into his model (Hackett et al., 1994). The focal point of his model is self-concept and how it adjusts to career stages (Julian, 1992). Super's theory has evolved into life stages and shows role relationships throughout life that incorporates work, family, citizenship, and leisure time (Julian, 1992).

Another theory in the developmental theory family is one put forth by Ginzberg, Ginsburg, Axelrad, and Herma (Julian, 1992). Ginzberg et al. (Julian, 1992) theorized that four factors circumscribed career decisions: environment, education, emotions, and values and that selecting a career consisted of learning about the career, considering the career, and selecting a career. Ginzberg et al.'s theory received much criticism because according to their model career choices could not be changed once made, there were problems operationalizing concepts, and weak research support (Hackett et al., 1994).

This section reviewed the dominant theories on career development: trait and factor theory, Holland' typological theory, and developmental theory. The trait and factor theory originated with Parsons and matched personality types with careers. A criticism of this model was its focus on content and not process. Holland's typological theory matches personality type with environments. Two themes from Holland's typological theory are that personality types in matching environments are more satisfied whereas personality types in environments that do not match are not satisfied but the environment eventually molds the individual's personality to match the environment.

The most popular developmental theory was Super's model. Super combined vocational maturity, career exploration, and self-concept into his model. The focal point of his model is self-concept which has evolved into life stages which examines role relationships throughout life. Another developmental model by Ginzberg et al. explores four factors in career decisions: environment, education, emotions, and values. Several criticisms of this model were the inability to change career decisions once they were made, weak research support, and inability to operationalize some of the concepts.

A commonality among the previous discussed theories is that they were based on men. Diamond (1987) maintains that early career theory was based on the careers of men. Gutek and Larwood (1987) and Parasuraman and Greenhaus (1993) concur, stating that in the past there was no reason to study women's career development; it was easy-they did not have a career, only temporary employment. They were expected to get married, after marriage stop work, and then have children. Career development theory began including research on women in the 1980s (Hackett et al., 1994). The next section focuses on three career development models for women.

## Women's Career Development

First, Astin's model is a sociopsychological model that examines four variables: needs, sex-role socialization, the structure of opportunity, and expectations (Astin, 1984). What follows are the component parts of each variable: 1) work motivation (survival, pleasure, and contribution); 2) sex-role socialization (play, family, school, and work); 3) structure of opportunity (distribution of jobs, sex typing of jobs, discrimination, job requirements, economy, family structure, and reproductive technology); and 4) expectations (what types of work activities, what options are open and which ones are closed) (Astin, 1984, p. 121). These variables interact in order to determine career choice and work behavior. Two major criticisms of Astin's model by Hackett et al. (1994) is that the model has weak empirical support and the inability to operationalize the constructs.

Two other models of women's career development are grounded in research (Hackett et al., 1994). Farmer stressed background, personal, and environmental variables in predicting career and achiement motivation. Specific components of Farmer's model are: 1) background: sex, race, social status, school location, and age; 2) personal: academic self-esteem, success attributions, intrinsic values, and homemaking commitment; and 3) environmental: support from teachers and parents and support for working women (Julian, 1992, pps. 50-51). Betz and Fitzgerald used career psychology of women research in finding their variables: individual (high ability, liberated sex-role values, instrumentality, androgynous personality, high self-esteem, and strong academic self-concept); background (working mother, supportive father, highly educated parents, female role models, work experience as adolescent, androgynous upbringing);

educational (higher education, continuation in mathematics, girl's schools and women's colleges); and lifestyle (late marriage or single, and no or few children) (Julian, 1992, p. 50).

In the chapter "*Working toward a theory of women's career development*" in the book Women's Career Development, Larwood and Gutek (1987) add that a career model for women should encompass: 1) marriage: dual career couples; 2) pregnancy and children; 3) timing and age: it takes 20 years to reach management, thus opportunities at 45 are not as great as ones at 25. Additionally, Parasuraman and Greenhaus (1993, p. 189) offer that women's career model should include organizational variables: career success (job performance, career advancement, salary, and job attitudes). In summary, a career development model for women must include individual variables (sex, race, and age), educational variables, job related variables, background variables, environmental variables, and family variables.

Along with the inclusion of women's career development in the career development research, the role of organizations in career development has also been included. Organizational issues in career development will end the theoretical discussions on career development after which the studies addressing career development will be presented.

### Organizational Issues in Career Development

Structural theorists, Kanter (1977), Tolbert, Horan, and Beck (1980), and Parcel and Mueller (1983) identify discrimination and the structure of the organization as important influences in career development. Kanter (1977) is a proponent of this theory because she believes that discrimination and the structure of the organization influence opportunity- access to resources, challenges, increase in skills and rewards, and information. Her book, Men and Women of the Corporation appeared in the bibliography of 99% of the literature reviewed.

Some researchers see career development as a function of socialization: fit, homogeneity, and ideologies of gatekeepers. Epstein's (1970) article "*Encountering the male establishment: Sex status limits on women's careers in the professions*", her chapter (1974) "*Bringing women in: Rewards, punishments, and the structure of achievement*" in the book titled Women and success: The anatomy of achievement, and Goode's (1957) article "*Community within a community*" liken high prestige jobs to a community.

As a community, the group members decide who can enter, usually those with the same norms, likeness, and attitudes (Epstein, 1970, 1974; Goode, 1957). Gatekeepers prevent those without the status sets from entering; consequently, those who are not allowed to enter the community can not develop the necessary competence to do the job since competence comes from:

- the socialization of the job by doing new tasks
- learning what to do and what not to do
- gaining access to certain people and information
- making mistakes and getting feedback
- gaining visibility
- letting the gatekeepers observe to see if the new recruit fits in

If the gatekeepers give their approval, the new recruit is then mentored/sponsored

(Epstein, 1970, 1974). Not only do gatekeepers determine who becomes a part of the inner circle, they determine who gets to join the big circle, the organization (Roos & Reskin, 1984; Sagaria & Dickens, 1990). These two organizational issues will be discussed beginning with who gets to join the organization, followed by sponsorship, and ending with mentoring.

Sagaria and Dickens (1990) suggest that unlike low and mid-level positions that emphasize skills, high level positions focus on competence which is an abstract construct and difficult to measure. To reduce the ambiguity and uncertainty in high level positions, employers rely upon known qualities like social commonalities or mutual experiences. Roos and Reskin (1984) posit that high level employees possess more decision making authority which increases their potential to disrupt the organization. For this reason, to reduce and counteract this possibility, managers hire people who resemble themselves socially or share reciprocal backgrounds and experiences. Because white males occupy most upper level positions, women, whose experiences are different in general and women of color who differ socially as well, are at a disadvantage in securing upper level positions (Roos & Reskin, 1984).

According to Phelps (1972), being dissimilar socially and experientially equates women to being unknown quantities. Research from the Executive Women Project seems to also confirm this belief (Morrison, White, & Van Velsor, 1987). According to Morrison, White, and Van Velsor (1987, p. 146), "women are different and, by definition outsiders".

The desire for certainty in high level positions translates into using personal contacts for recommendations in filling upper level positions (Stumpf & London, 1981; Saloner, 1985; Reskin & Hartmann, 1986; Sagaria & Johnsrud, 1992). Saloner (1985) affirms that third party evaluations are more reliable than looking at inanimate applications. Agreeing, Granovetter (as cited in Sagaria & Johnsrud, 1992) believes employers prefer information from personal contacts because this is faster, more accurate, and less work. Furthermore, Granovetter (as cited in Sagaria & Johnsrud, 1992) suggests that since most applicants share similar qualifications, personal recommendations carry more weight than information on an application.

Josefowitz (1980) states that given a choice between equal credentials and "organizational fit" that employers will choose the person who fits in with the organization with sex and race which is typically, neither a woman nor a minority. A respondent commented to Hymowitz and Schellhardt (1986, p. 1D) that "Up to a certain point, brains and competence work. But then fitting in becomes very important." Geis, Carter, and Butler (1982) add that high level and high rewards jobs require rationality, dominance, and ambition (Geis, Carter, & Butler, 1982) and since women and minorities lack these qualities, they seldom attain such positions (Rosenfeld, 1980).

To be effective after joining the organization, organizational psychologist Edgar Schein (1971) states the invidual must go through a rites of passage similar to fraternal and religious orders. This rites of passage involves tests of acceptance, assistance with performing the job, and progression towards the inner circle. Alvarez (1979) believes sponsorship helps the new recruit to do his/her job and without sponsorship the task would be difficult.

Sponsorship is a function of mentoring, which historically, has its roots in Greek mythology when Odysseus left his house and son, Telemachus, in the care of Mentor (Merriam, 1983; Gerstein, 1985); Mentor supposedly advised Telemachus as well as saved his life once. Also, in adult development, the most successful men in Levinson's study (as cited in Merriam, 1983) had mentors which led him to conclude that mentors are important to career development. The classic sense of mentoring is defined as:

> a powerful emotional interaction between an older and younger person, a relationship in which the older member is trusted, loving, and experienced in the guidance of the younger (Merriam, 1983, p. 162)

Kram's (1985) definition of mentoring illuminates that an interpersonal relationship exists between the mentor and protégé and that the mentor has influence and power in the organization.

Agreement does not exist on what term to use, mentoring or sponsoring. Other terms used include: **rabbis, godfathers**, **benefactors**, and **patrons** (Thompson, 1976; Kanter, 1977; Lawrence, 1985). Shapiro, Haseltine, and Rowe (1978) believe a continuum exists between mentoring and sponsoring with peer pals first, guides second, sponsors third, and mentors, fourth. Peer pals are peers helping each other and exchanging information; guides explain the system and are supporters of the protégé; sponsors shape and promote the careers of protégés but do not have as much power as mentors. Disagreeing, Kanter (1977) uses the term sponsor and Josefowitz (1980) sees sponsors as more powerful than mentors. Speizer (1981) conceptualizes the terms as one of time, with the word "sponsor" being in use in the 1960s and 1970s after which time the word "mentor" came into usage. Kram (1985), like Shapiro et al. (1978), uses the term "developmental relationships".

Even though agreement does not exist on which term to use, mentoring or sponsoring, there is consensus on the function of the mentor/sponsor relationship: encourages to take risks and protects (Thompson, 1976); shapes and promotes the career of the protégé (Kanter, 1977; Shapiro, Haseltine, & Rowe, 1978; Josefowitz, 1980; Merriam, 1983); takes an interest in career and guides (Merriam, 1983); teaches, sponsors, gives moral support, serves as a role model, and trains (Lawrence, 1985). Kram theorizes that the ideal mentoring relationship is twofold: career enhancement and psychosocial. Career enhancement functions include sponsorship, exposure and visibility, coaching, protection, and challenging assignments; psychosocial functions include role modeling, acceptance and confirmation, counseling, and friendship (Kram, 1985, p. 23).

Regardless of the term used and meaning, selection as a protégé is extremely symbolic according to Epstein (1974, p. 17):

> It is often impossible for the aspiring elite recruit who is unwanted to acquire competence, especially the competence learned after formal training, in an informal professional setting. This latter training is necessary if the professional is to operate at the highest levels. There are a number of dimensions to the creation of competence. One was long ago identified by the sociologist Max Weber as "charismatic education", the education of persons selected to assume leadership roles. Weber included in his description not only the technical knowledge necessary to become warrior, medicine man, priest, or legal sage, but the *secret* know-how, and the creation of a sense of distinction by passing through

often torturous initiation ceremonies."

Moore (1982b, p. 24) adds, selection is like **being specially chosen** and protégés liken the experience to being **ordained** or **having hands laid upon them**.

A synthesis of this section reveals that in order to reduce the uncertainty inherent in high level positions, organizations hire people who are similar to them socially and who share similar background experiences. Another way organizations attempt to reduce ambiguity or the unknown factor is to use third parties in evaluating potential employees. This is faster and takes less time. Additionally, in order to be sponsored internally and get help on tasks, gatekeepers must give their approval, for without their approval, the task would be difficult. Moreover, in order to be invited to the inner circle, the individual must go through a rites of passage similar to fraternal and religious orders, and if successful, the status of protégé is obtained.

This ends the discussion on career development theory. From this discussion, the primary theories on career development are trait and factor, Holland's typological theory, and Super's developmental theory. New and inclusive issues in career development theory appropriate to this study are women's career development and organizational issues. Three career development theories for women are Astin's model, Farmer's model, and Betz and Fitzerald's model. Of the three, Farmer's model and Betz and Fitzerald's model are sound empirically. The criticism with Astin's model center around the lack of research support. All three models include personal variables, background variables, environmental variables, and lifestyle variables. Another emerging issue is the influence of the organization in career development. Three issues important to career development from an organizational viewpoint are hiring for high level positions, support on the job, and being mentored. All three issues require approval from the gatekeepers of the organization and approval is most likely if social similarities and background experiences match. Presented next are studies of variables in career development.

## CAREER STUDIES

### Demographics

The 76 women in Morrison, White, and Van Velsor's (1987) study Breaking the glass ceiling: Can women reach the top of America's largest corportations? identified six keys for women to "break the glass ceiling". One, they must have help from above in the form of a mentor or sponsor who tutors, guide, and recommends for key assignments which gives visibility, access, and insight into the operations of the business. Two, they must have a track record of achievements and be extremely competent; three, they must have a desire to succeed which means putting their career first, willing to be mobile, and ambitious. Four, women must have the ability to manage subordinates which means having good people skills and being an excellent communicator. And finally, they must be willing to take risks and be tough, assertive, decisive, and demanding.

Gattiker and Larwood's (1990) study of 215 managers from 17 firms in Los Angeles investigated career achievement, demographics, success criteria, career choices, and family variables. Demographic variables accounted for a significant portion of the variance in predicting management level. Julian's (1992) study of women administrators who had participated in the National Institute for Leadership Development found no relationship between demographics and career achievement.

Capozzoli (1988) obtained a profile of 10 women administrators from New Jersey and Pennsylvania using interviews and more than half were in their forties. Likewise, in the national study of 1512 administrators by Moore, Twombly, and Martorana (1985), the average age of the women was 46.4 years.

In all of the studies, **more men were married than women**: in Moore's (1982a) Leaders in Transitions study of 577 women and 2,318 men; Moore, Twombly, and Martoranna's (1985) nation wide study of 1,512 administrators; Warner and DeFleur (1993); Parasuraman and Greenhaus (1993); and Gillett-Karam, Smith, and Simpson (1997). In Warner and DeFleur's (1993) study, many of the women had never been married or were divorced. Voydanoff (1987) and Parasuraman and Greenhaus (1993) found that managerial men marry women with low academic or occupational achievements; this is not the case with managerial women.

Moreover, the majority of the **men were more likely than the women to have children**. In Julian's (1992) study of 175 community college women administrators who had participated in the National Institute for Leadership Development in 1991, one-third of them had no children, 17.7% had one child, and 27.4% had two. The average age of the children was 20 years old, only 5.7% of them had children under 6 years old, and the majority of them had children over 18 years old. LeBlanc (1993) stated that some women were abandoning motherhood because of the conflict between family responsibilities and the 50 to 60 work week of higher education administrators. She stated that women do not have a wife at home to do housekeeping and take care of the children. The male counterparts of females have wives who either do not work or who work at jobs that are not demanding.

For example, Strober's (1982) study of MBA's found that half of the men indicated that their wives had the responsibility for the household, and half of the women indicated it was their responsibility. In addition, 88% of the men said their wives had the responsibility for child care while 88% of the women said it was their responsibility. Moreover, when asked who was responsible for taking care of a sick child, half of the women stayed home, and 81% of the men said their wives stayed home. None of the women said their husbands stayed home nor did the men say they stayed home. In a corporate study by Googins and Burden (as cited in Jones, 1993), women spent about **45 hours in the home** compared to about **25 for the men**. Yogev (as cited in Jones, 1993) found that faculty women spent **107 hours on everything and had only 4.42 hours** left for personal use after counting sleep time.

Family responsibilities for women administrators extend beyond the immediate family of husband and children to **aging parents** (Voydanoff, 1987; Jones, 1993). Brody and her associates (as cited in Jones, 1993) indicated that the care of aging parents usually fell to the daughter or daughter-in-law. Working daughters equaled nonworking daughters in providing care for their aging parents, about 35 hours a week. Added, statistics by Crawford (1996) show that women spend about equal amounts of time as a mother and caring for a dependent parent, 17 years.

These studies demonstrate that women are still responsible for maintaining the home. Consequently, in order to advance, women are not marrying and not having children. An added responsibility women now have is the care of an aging parent.

### Education

Winship and Amey (1992) categorize obtaining the doctorate as a formal career development variable. Studies reveal that men are more likely than women to possess the doctorate. Only nine percent of the women in Jones' (1983) study held the doctorate. Jaskolka, Beyer, and Trice (1985) and Julian (1993) found a significant relationship between educational level and career achievement. In North Carolina, Gillett-Karam, Smith, and Simpson (1997) found that men were three times as likely than women to have the doctorate.

### Career Plan

Five men and five women community college presidents in Winship and Amey's (1992) study stated that formally developing a **career plan** influences career development. Grey's (1987) sample of 64 female community college presidents and 144 female chief academic officers along with 100 male presidents concur with developing a career plan. Grey found no difference between men and women in their use of career strategies.

### Relocation

One career strategy is to **relocate**. Markham's (1987) review of research on **relocation** as well as his own research indicate that a relationship between gender and willingness to relocate exists. According to Markham (1987), two influences of this relationship may be income adequacy and reason for working.

Similarly, Bell's (1992) study of Ph.D. recipients in the basic biomedical sciences from January 1957 to July 1986 (304) disclosed that more married respondents, a large portion of them women, were unwilling to move at all for advancement, 31.9% of the married women and 12.2% of the married men. Over three times as many married men (25.2%) were willing to move than married women (8%). In the dual career subset, 29.3% of the women were unwilling to move at all in comparison to 13.7% of the men. Twenty one and one-tenth percent of the men in this category were willing to move while only 7.6% of the women.

Julian's (1992) study of community college women administrators found that more than 67% of the women had never relocated for a promotion and that only 35% were willing to relocate. Over 50% of the women in Gillett-Karam, Smith, and Simpson's (1997) study agreed that their unwillingness to relocate hindered their advancement.

In contrast, community college women in Kuyper's (1987) study rated willingness to relocate as important. Moore and Sagaria (1986) contend that women in higher education are willing to move even though the researchers acknowledge that women tend to advance within the same institution. In a survey of 180 women administrators in all higher education institutions (52% response rate), most women had advanced from within the same institution and 40.2% expected a move within the next five years. When the women were asked if they envisioned moving within the same institution or a different institution, about half of them (17) said a different institution. Likewise, an American Management Association (as cited in Hymowitz & Schellhardt, 1986) study of 1,460 managers revealed that women were committed to their careers and indicated a willingness to move for promotions.

**Networks**

A second type of career strategy is the **development of networks** which according to Ragins and Sundstrom (1989) is very important and according to Winship and Amey (1992) is informal. Interpersonal skill, according to the women in Morrison, White, and Van Velsor's (1987) study, competence, desire to succeed, and the ability to manage subordinates are the key to developing networks. The women in Hubbard's (1993) study of 250 four-year administrators used professional organizations to help with networking. Patz's (1989) study of 280 women administrators in California revealed a positive relationship between networking and high administrative levels and frequency of promotions. The most effective networking methods named by the women were: educational organizations, telephoning women, and networking outside the college.

Hubbard's (1993) study of 250 four-year administrators in six southern states revealed that both men and women used networking but women used networking as well as professional organizations more to help them obtain their jobs.

The seven mid-level student affairs' women administrators in 4-year schools in California told Holliday (1992) that professional organizations helped them to develop and grow, to take risks, and to develop networks. They also stated that they volunteered for committee assignments and projects.

Booth and Scandura (1996) believe that networking and access to information are very important to moving up. From these networks, women learn their jobs and obtain important information (Booth & Scandura, 1996; Amey, 1990).

Moore, Twombly, and Martorana (1985) found very little difference in the participation of external and internal professional activities by men and women in their national study of administrators in two-year colleges. Both men and women rated participation in task forces as important to career development. In contrast, Moore's (1982a) national study of higher education administrators highlighted that women participated less in external professional activities than men.

### Supervisors

Amey (1990) believes that the **supervisor** determines the manager's exposure in the organization and Harrow (1993) believes that the **supervisor shapes career outcomes**. Agreeing, Offermann and Armitage (1993) state that a positive correlation exists between good relationships with the supervisor and access to resources and support. Holliday's (1992) seven women also noted the importance of supervisors in professional development and candidly stated that the presence of women in higher administrative levels did not necessarily help career development. Women in Gillett-Karam, Smith, and Simpson's (1997) study also noted the lack of support from supervisors. Anderson (1993) recommends that bosses should be chosen carefully because of the power they have over career development. She suggests learning as much about the boss as possible.

Harlan and Weiss (1981) used eight sets of variables in their model to predict mobility: demographics, distribution of organizational members, power, goals and aspirations, sex bias, training and development, needs and motives, promotion and mobility. They sampled two large retail companies of ninety-six managers and 77 supervisors, 50/50 male and female matched on functional and organizational level. Results of the study revealed no significant differences overall except in a few areas:

supervisors of women managers were less favorable of women managers than men, and women worked harder getting the trust of colleagues. One key issue discovered in the study was a positive relationship between the frequency of informal meetings with the supervisor and the supervisor's appraisal of the woman manager. This was not the case for men.

Stewart and Gudykunst (1982) sampled 404 employees in a financial institution to ascertain variables relating to hierarchical level and number of promotions. For men the best predictors were education, age, and number of meetings with supervisor which only accounted for 5.2% of the variance in level in the organization. The best predictors for women, accounting for 36.8% of the variance, were perceived importance of the grapevine, number of meetings with supervisor, and perceived importance of friend's assistance.

Supervisors are very important to career development according to Drucker (1977) and Gabarro and Kotter (1980). In Drucker's (1977) article "*How to manage your boss*" and Gabarro and Kotter's (1980) article "*Managing your boss*", the writers advise managers to learn to manage their boss by learning his/her strengths and weaknesses, what she/he likes and dislikes, his/her interaction style, and the way he/she likes to receive information.

### Mentoring

Another organizational variable important to career development is mentoring. Studies linking mentoring to career development are relatively recent; only two existed when Dreher and Ash (1990) conducted their study. Dreher and Ash (1990) surveyed

978 business school graduates of which 320 were usable. The purpose of the study was to examine the relationship of mentoring to career outcomes for men and women. Results indicated a positive relationship between mentoring and career development but there were no differences in mentoring experiences by men and women, the number of promotions received by men and women, and satisfaction with their compensation level.

Scandura (1992) sampled 350 mid-level managers in a large, high technology manufacturing firm and received 244 questionnaires back. Ninety-seven percent of the sample were men. The purpose of the study was to examine the relationship between mentoring, demographics, and career outcomes (rate of advancement, salary attainment, and supervisory ratings of performance, success, and contributions). Scandura (1992) found the career function mentoring as discussed by Kram (1985) proved to be significant and positively related to promotion rate; and Kram's (1985) social support function correlated positively to salary level. Thus, Scandura (1992) concluded that mentoring does influence career development.

Sagaria and Johnsrud (1992) investigated the hiring of positions at Ohio State for the years 1983-85 (820) and found that most positions were mid-level and very few at the top; the positions filled were in the lower or middle level, 66.9% were filled by sponsorship, 33.1% were open contest; and 87.5% of the highest level positions were sponsored. Hubbard's (1993) study of 250 four-year administrators in six southern states revealed that women used mentors more to help them obtain their jobs. In addition, women in top level administrative positions in Warner and DeFleur's (1993) study of 394 administrators from all institutions were likely to have been sponsored. Men received top level appointments irregardless of sponsorship. According to a survey cited by Weiss (1995, p. 12), sponsorship or mentoring or championing is more important than competence, experience, special projects, education, and luck and begins with hiring.

**Ethnicity**

Sagaria and Johnsrud's (1992) study also revealed that minorities were not sponsored for any of the positions in their study. Greenhaus, Parasuraman, and Wormley (1990) discovered that although there were no race differences in sponsorship, supervisory support, and use of advancement strategies, supervisors' promotability assessments of black managers were not as favorable. One respondent in Gillett-Karam, Smith, and Simpson's (1997) study stated that black females do not advance at her institution. The AT & T Assessment Center contends that race differences are negligible for upward moving black executives.

**Tenure and Training**

Jaskolka, Beyer, and Trice (1985) and Gattiker and Larwood (1990) found that tenure in location was negatively related to level in the organization; Scandura (1992) found performance ratings and tenure to be negatively related. Training and promotion in Scandura's (1992) study were positively related; the women in Faulconer's (1993) study believed training was necessary for advancement and that the doctorate was a training mechanism for administrative roles.

A summary of this section suggests:

- women in high level positions are in their forties
- women seeking advancement tend not to be married

- women seeking advancement tend to have no children/fewer than women not seeking advancement
- taking care of aging parents may influence decision for advancement
- educational level important to advancement
- women believe the doctorate to be important but tend to have it less than men
- the doctorate is a formal variable and a training mechanism for administration
- having a career plan is important
- research on relocation is mixed
- networks are important for advancement and these may be in the form of professional organizations
- volunteering for assignments should be considered to help gain visibility
- mentoring and sponsorship are important but requires being accepted into the inner circle
- supervisors are important to advancement and they must be managed
- tenure and advancement are negatively related
- training is very important for advancement

# CONCEPTUAL FRAMEWORK

**Dependent Variable:** The dependent variable in this study was career path operationalized by the following question on the survey:

Which item below best describes your career goals for the next five years?

1. Advance to a higher level
2. Remain at my current level
3. Drop back a position or level
4. Leave the community college system
5. Retire
6. Change career track
7. Other

Response one (1) was coded as desiring to advance (1) and all other responses were coded zero (0), does not desire to advance higher.

**Independent Variables:** There were three sets of independent variables: personal variables, situational variables, and advancement strategies. These are the variables identified in the literature as influencing career path. Personal variables include: age, ethnicity, marital status, number of children who are (0-5 years of age, 6-11 years of age, 12-17 years of age), elderly caregiver status presently, elderly caregiver status in the last five years, and educational level. Situational variables include: gender of immediate supervisor, ethnicity of immediate supervisor , number of years (full-time) of administrative experience, number of years (full-time) at current administrative level, number of years (full-time) at present institution , total number of years (full-time) in higher education, and current job level. Advancement variables include: terminal degree activity (defined as either possessing a terminal degree or is working towards one), willingness to move, number of campus committees/task forces that served on, number of external committees/task forces that served on, number of upper level positions applied for in the last five years inside and outside this institution, participation in a leadership institute of more than one day in duration in the last five years, and have a sponsor/mentor. The strength of these variables will depend on feedback and cues received from personal variables and institutional variables.

The conceptual framework, figure 3, on the next page highlights the interrelationships between the personal variables, advancement strategies, situational variables, and career path. Based on the review of the literature, the following propositions were posited:

Proposition 1: Younger women will desire to advance in contrast to older women who will desire to remain at the current level

Proposition 2: A negative relationship will exist between women of color and career path

Proposition 3: White women will desire to advance higher than women of color

Proposition 4: Family responsibilities will influence pursuing a doctorate, willingness to relocate, and the availability to serve on committees

Proposition 5: Women engaged in the advancement strategies will want to advance

Proposition 6: Gender of supervisor and career path will be mixed

Proposition 7: The women will differ only in their use of advancement strategies

# CONCEPTUAL FRAMEWORK

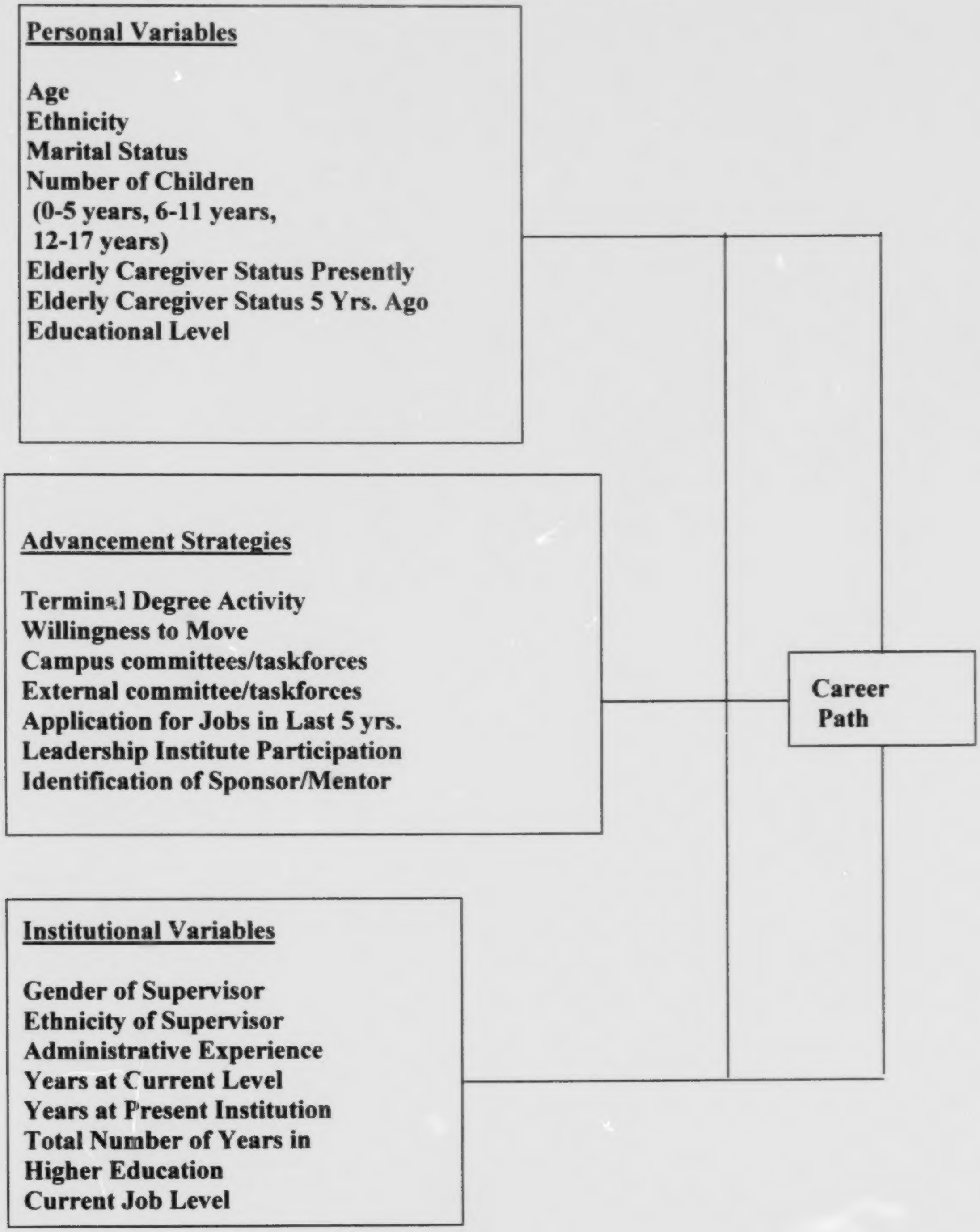
Personal Variables
Age
Ethnicity
Marital Status
Number of Children
(0-5 years, 6-11 years,
12-17 years)
Elderly Caregiver Status Presently
Elderly Caregiver Status 5 Yrs. Ago
Educational Level
Advancement Strategies
Terminal Degree Activity
Willingness to Move
Campus committees/taskforces
External committee/taskforces
Application for Jobs in Last 5 yrs.
Leadership Institute Participation
Identification of Sponsor/Mentor
Institutional Variables
Gender of Supervisor
Ethnicity of Supervisor
Administrative Experience
Years at Current Level
Years at Present Institution
Total Number of Years in
Higher Education
Current Job Level
Career
Path

FIGURE 3 : CONCEPTUAL FRAMEWORK

# CHAPTER 3

## METHODOLOGY

This study examined the career paths of women administrators in the North Carolina and California Community College Systems. Chapter One discussed the problem and background to the study, listed the research questions, stated the purpose of the study, outlined the significance and limitations of the study, and defined the terms used in the study. Chapter Two, the literature review, was divided into four sections: organizational theory, leadership theory, career development, and appropriate studies on career development variables. This chapter examines the research design, population and sample, instrumentation, survey pretesting, data collection, data coding, variables used in the study, and data analysis.

### Research Design

The design of this study can best be categorized as comparative because two groups of women administrators from North Carolina and California were compared. A survey collected data on the career paths of the women administrators, personal variables like age, marital status, educational level; situational variables like sex of supervisor, ethnicity of supervisor, number of years at current level; and advancement variables like terminal degree activity, number of external committees/taskforces/boards, and participation in a leadership institute. In addition, the survey gathered the goals of the women in the next five years, steps from the president, and administrative level three and seven years ago. Moreover, the survey was cross-sectional because (Borg & Gall, 1989) information was gathered from a known population collected at one point in time. Further, the researcher utilized the survey method because of geographical barriers between the researcher and the survey sample, economics, and quickness in analyzing the data (Dillman, 1978; Creswell, 1994).

### Population and Sample

The population consisted of women administrators in community colleges in the United States in the reporting sequence from department chair, lead instructor, program coordinator, satellite or off campus coordinator to chief instructional officer, executive vice president, associate or assistant chancellor, or provost. Women in these positions from the North Carolina and California Community College Systems comprised the sample. How the names were obtained will be discussed next beginning with North Carolina, followed by California.

Initially, the researcher e-mailed the admissions office of the 59 community colleges in North Carolina requesting a college catalog in January 1998 for the purpose of confirming the names of the women administrators sent from the community colleges. Immediately, this idea proved to be problematic for several reasons. First, many schools responded that they were out of catalogs and would not have any until April 1998; second, some schools never responded; and third, the e-mail system at the colleges failed. Therefore, the researcher proceeded as planned with enlisting the assistance of Dr. Wilson, president of Wayne Community College and employer of the researcher, in obtaining the names of the women administrators.

Permission had to be given first in order to survey the women administrators, so Dr. Wilson called the North Carolina Community College System Office in the presence of the researcher and asked to speak to Mr. Martin Lancaster, President of the North Carolina Community College System. Mr. Lancaster was not available so Dr. Wilson communicated to the person who answered the telephone the nature of his call. As a result of the conversation, the researcher was instructed to explain the nature of the study to Dr. Barry Russell by e-mail. In accordance with the instructions, the researcher e-mailed Dr. Russell explaining the nature of the study, and received permission to survey the women on February 16, 1998 by e-mail (see Appendix A).

On February 27, 1998, Dr. Wilson e-mailed (see Appendix B) the 59 presidents of the community colleges in North Carolina requesting the names of the women administrators by fax or e-mail; one school reported names that same day. As the names came in, the researcher checked the names of the women against the names in the college catalogs that had been received, about 20. Upon looking in the catalog, another level of administrators became apparent, lead instructor or curriculum coordinator. So, the researcher e-mailed and called schools that had responded already and requested the names of their women lead instructors or curriculum coordinators, if any. Also, because the names were slow coming in, the researcher began calling the schools and asking if they had received an e-mail from Dr. Wilson. Many of the schools responded that they had not, so the request was made on the telephone. Within a few days of the researcher calling the schools, Dr. Wilson e-mailed the researcher that some schools had been having e-mail problems, so his assistant had faxed (see Appendix C) the information to the schools. Thirteen (13) schools had not reported by March 13, 1998, and two by March 20, 1998. Dr. Wilson continued asking for the names until all schools had reported which was April 3, 1998. The researcher entered a total 536 names from North Carolina into the database Microsoft Access 97 for PC's. While collecting names for women in North Carolina, the researcher also worked on getting the names from California which will be discussed next.

Knowing where to begin in California and the nature of the system was a mystery because calling the System Office in California did not help. As a result of this, the researcher called Dr. Belle Wheelan, a female community college president in Virginia for assistance and she gave the researcher three names of presidents in the California Community College System. From these names, other contacts were made who proved helpful in giving feedback on the survey and during the course of the study but not in getting names of the women in the system. The researcher eventually purchased the 1998 Community College Directory (see Appendix D) published jointly by the Community College League of California and the California Community Colleges Chancellor's Office. After receiving the directory, the researcher highlighted every name thought to be a woman in every department thought to be instructional with questionable departments called for confirmation. Of the respondents who returned surveys in California, only two were men and one was not an administrator in the instructional area. The researcher also received one telephone call and one e-mail of respondents who were men instead of women. This reduced the total California sample size to 238 names which were entered into Microsoft Access 97. As with the women administrators in the

North Carolina System, the researcher printed a master list of the women administrators in the California System; thus, the complete sample contained 774 women administrators.

Twelve women in the North Carolina Community College System piloted the survey reducing the respondents in North Carolina to 524. The researcher used the California director for the American Association of Women in Community Colleges in California, Norma Goble, who also works in the Chancellor's office to pilot the survey for California. The researcher mailed a total of 762 surveys, 524 from North Carolina and 238 from California. From North Carolina, the researcher received 474 surveys back, a 90% return rate, out of which there were: two nonresponses, four had left the institution, two had retired, four were not administrators, one was in continuing education, four only had high school diplomas, and one had returned to teaching. Thus, this reduced the sample to 506, and the number of useable surveys to 456, still a 90% return rate. In California, the researcher received 194 surveys out of 238, an 81.5% return rate, out of which two were men and one not an administrator. This reduced the California sample to 235, and the number of useable surveys to 191, an 81% return rate which contributed to an overall return rate of 87%. Four surveys omitted age, two from each state, and when the researcher called the respondents they still refused to give their ages, so instead of removing the surveys, the researcher let the computer remove them.

**Instrumentation**

Using a thorough review of the literature, the researcher designed the survey for the study because one was not available. Construct validity (Borg & Gall, 1989) determines whether an instrument indeed measures the construct being examined which in this study was the influences of career paths for women administrators. Dr. Susan Twombly and Dr. Mary Ann Sagaria, both cited in the research, and Dr. Rosemary Gillett-Karam, advisor to the researcher, critiqued the constructs and believed that the survey adequately addressed the constructs.

The design of the survey followed closely Dillman's (1978) Mail and Telephone Surveys: The Total Design Method and encompassed three stages. In the first stage, the researcher designed the survey into four parts and instead of asking for demographics in the first part, Dillman (1978) suggests this part be last in the survey which is the fourth part of the survey used in this study. In the first part of the survey, respondents answered career data information (see Appendix E):

- Question1: List your current job level
  A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator
  B. Associate or Assistant Dean
  C. Division Chair or Dean
  D. Associate or Assistant Vice President for Instruction
  E. Chief Instructional Officer
  F. Executive Vice President, Associate or Assistant Chancellor, or Provost
  G. President, Superintendent, Superintendent/President, or Chancellor or a district
- Question 2: How many years have you served at your current level?
- Question 3: What was your administrative level three years ago?
- Question 3b: How long were you at that level?
- Question 4: What was your administrative level seven years ago?
- Question 4b: How long were you at that level?
- Question 5: Which item below BEST describes your career goals for the next five years (A. Advance to a higher level; B. Remain at my current level; C. Drop back a position or level; D. Leave the community college system; E. Retire; F. Change career track; G. Other)

If respondents answered A for question 5, they continued with question 6, otherwise they were instructed to go to question 8. Directing respondents to question 8 instead of question 7 resulted in question 7 not being answered by the majority of the respondents. In rearranging the survey for final printing, question 7 was moved from its original position which resulted in only respondents desiring to advance answering the question which was not the intent. However, some respondents answered question 7 anyway although their responses were not letter A for question 5. Part I continues below:

- Question 6: Using the titles and descriptions listed below, if you desire to advance higher in the next five years, indicate the highest position to which you aspire.

  A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator
  B. Associate or Assistant Dean
  C. Division Chair or Dean
  D. Associate or Assistant Vice President for Instruction
  E. Chief Instructional Officer
  F. Executive Vice President, Associate or Assistant Chancellor, or Provost
  G. President, Superintendent, Superintendent/President, or Chancellor or a district
- Question 7: On a scale of 1 to 8 with 1 representing the president and 8 representing faculty, how many administrative steps are you from the president at your current level ?

Dillman (1978) also suggests using a transition between the different parts of the survey by indicating what the next part of the survey will cover which the researcher incorporated in the survey. The next three parts of the survey are listed below:

Part II: Job and Work Experience

- Question 8: Number of years of administrative (planning, coordinating, staffing, supervising) experience.
- Question 9: Number of years (full-time) at present institution.
- Question 10: Number of years (full-time) in higher education.
- Question 11: Sex of immediate supervisor.
- Question 12: Ethnicity of immediate supervisor.

Part III: Professional Information

- Question 13: How far would you be willing to move to assume a higher position?
  A. Limited miles within the state
  B. Anywhere within the state
  C. Limited miles outside the state
  D. Anywhere outside the state

For question 13, when the surveys started coming in some respondents had left this question blank. Upon calling the respondents, they said their response was not on the survey, so the researcher asked what response should be on the survey and some said "not an inch" and others said "no miles". Based on this information, the researcher added another category, "no miles" because the respondents felt so strongly about not moving.

- Question 14: Number of campus committees that you have served on in the past academic year (0,1, 2, 3, 4, 5, 5+).
- Question 15: Number of external committees/Boards/Taskforces that you have served on in the past academic year (0, 1, 2, 3, 4, 5, 5+).
- Question 16: Have you participated in a leadership institute of more than one day in duration in the last five years?
- Question 17: If a mentor/sponsor is defined as a person who helps, gives advice, teaches, coaches, speaks on your behalf, recommends you for committees and jobs, gives you visibility, and keeps you informed of what's happening on campus; do you have a mentor/sponsor?
- Question 18: How many upper level positions have you applied for in the last five years?

Part IV: Personal Data

- Question 19: Your present age.
- Question 20: Your ethnicity.
- Question 21: Your present marital status.
- Question 22: Your highest degree attained.
- Question 23: If you do not have a doctorate, are you currently pursuing a doctorate?
- Question 24: List the ages of your children under 18, if any.
- Question 25: Is the care of a parent or relative (yours or your husband's, if married) your responsibility?

- Question 26: Has the care of a parent or relative (yours or your husband's, if married) been your responsibility in the last five years?
- Question 27: The location of this educational institution (CA or NC).

The end of the survey contained the name, address, work and home telephone numbers, and e-mail address of the researcher just in case the respondents had any questions or concerns, and a thank you.

**Pretesting the Survey**

In the second stage of designing the survey, the researcher's committee and a professor emeritus at the Survey Research Center in Michigan critiqued the survey (see Appendix F). In this phase, misspelled words were discovered as well as reference to nine categories of job levels when only six were listed; all errors were corrected. In addition, women administrators and two faculty members at the researcher's place of employment agreed to fill out the survey and give feedback on the questions (see Appendices G and H). Moreover, every 107th woman administrator (5) on the North Carolina master list were also sent the survey and a return envelope for feedback on the survey (see Appendices I and J). Further, in California, the American Association of Women in Community Colleges' Regional Coordinator for California and a female president of one of California's community colleges critiqued the survey and felt that the women in California would feel comfortable with the survey.

Feedback from the Regional Coordinator for California for the American Association of Women in Community Colleges and the other women who took the survey found the question on husband's income offensive, and another woman thought the print was too small . Likewise, one member on the researcher's committee thought husband's income would not be answered which would cause many surveys to not be useable. This same committee member suggested that Latino/Latina needed to be added to the Hispanic ethnicity. From other comments, another question on eldercare in the past five years was added which proved to be the correct decision because past eldercare barely missed the .05 alpha level in the research findings. As a result of the feedback, the researcher eliminated the question on husband's income, added another question on eldercare, abandoned the form of the survey, and used a booklet form instead.

## Collection of Data

In changing to the booklet form, the researcher used media services at Wayne Community College to produce the eight page 5½ by 8½ booklet printed on white quality paper for the survey and rose linen paper for the booklet cover which included a clip art picture of two professional women (Dillman, 1978). The cover letter which accompanied the survey was printed on Wayne Community College letterhead (see Appendix K) and the contents of the letter included the purpose and importance of the study, the importance of the role of the respondent, an offer of confidentiality, an offer to send the results of the study, and a thank you (Borg & Gall, 1989; Dillman, 1978). To enhance the appeal of the cover letter, the researcher followed Dillman's (1978) advise in formally addressing the letter to each woman in the sample which included using her name, place of employment, and address of employment. In addition to formally addressing the letter to each woman, the president of Wayne Community College and the researcher signed each letter.

In preparation for mailing the surveys, the researcher enclosed the survey, cover letter, and a stamped 6 by 9 brown clasped envelope into a 6½ by 9½ brown clasped envelope, and then weighed the contents at the post office to ascertain the correct postage needed to mail the package. The total postage required to mail the survey amounted to 55 cents; the total postage required for the respondents to return the survey amounted to 32 cents. Each survey booklet was numbered with a Bates automatic numbering machine ordered from an office supply store (Dillman, 1978; Hoinville & Jowell, 1978). On the outside of the 6½ by 9½ brown clasped envelope were a return address label for the researcher, an address label for the respondent, and a 55 cents stamp; on the outside of the enclosed 6 by 9 brown clasped envelope were a return address label for the researcher and a 32 cents stamp. Seven hundred sixty-two (762) surveys, 524 for North Carolina and 238 for California, were mailed on July 1, 1998.

On July 27, 1998, a second mailing went out because only 59% of the surveys had been returned. In this mailing, the women received another letter on Wayne Community College letterhead (see Appendix L), shorter than the first, another survey, and a return addressed stamped 6 by 9 clasped envelope. Babbie (1995) states that a survey should be included with follow-ups because if the respondent can not find the survey nothing has been accomplished. Three weeks later, August 17, 1998, a final follow-up (see Appendix M) was scheduled but the researcher realized that the women were returning for fall semester and probably would not return the survey, so the surveys went out on August 24, 1998 instead. Seventy-six and one-half percent of the surveys had been returned by August 17, 1998 and 79% by August 24, 1998. During September 1998, no more than two surveys arrived in the mail at one time. However, by the end of September 1998, the response rate had risen to 87%. Although checking for response bias was not necessary because of the high response rate, three surveys that arrived in October and one in December were used for that purpose, and the responses were not different from the other respondents received earlier.

A final breakdown of the surveys revealed that 474 out of 524 (90%) had been received from North Carolina and 194 out of 238 from California (81.5%), a total of 668 out of 762 (87.67%). As stated in another section, in North Carolina, eighteen surveys were eliminated because of the following: two surveys were returned not answered, four had left the institution, two had retired, four were not administrators, one was in Continuing Education, four had only a high school diploma, and one had returned to teaching. This reduced the number of surveys in North Carolina to 456 out of 506 (90%). In California, three surveys were eliminated because one was not an administrator and two were men which reduced the number of surveys to 191 out of 235 (81%) increasing the overall response rate to 87% , 647 out of 741.

**Data Coding**

Returned surveys were dated with a date stamp, a check placed by the name on the master list of names, and a "Y" entered in the computer database for returned survey. Also, the outside of the envelope and survey were checked to see if the respondent had written "results requested", if so, this was also entered into the computer database. In addition, the surveys were scanned for missing responses and respondents received a call if all questions were not answered, except the question on steps from the president which would not have been manageable. In calling respondents about willingness to move, the researcher realized another response was needed "not willing to move" because respondents said they would not move "an inch". Four respondents did not want to give their ages, so the computer omitted them in the analysis. After checking the surveys, respondents were categorized by state, NC or CA, and received an identification number using the Bates numbering machine. Responses to letters A, B, C, D, E, F, or G on the survey received numeric codes of 1, 2, 3, 4, 5, 6, 7; marital status received codes of 1 for single (never married), 2 for married, 3 for divorced, and 4 for other; highest degree attained received codes of 1 for Associate's, 2 for Bachelor's, 3 for Master's, 4 for Doctorate, and 5 for Professional; willingness to move received codes of 1 for not willing to move, 2 for limited miles within the state, 3 for anywhere within the state, 4 for limited miles outside the state, and 5 for anywhere outside the state; number of children 0-5, 6-11, and 12-17 were counted in each age group, and state received a code of 1 for California and 0 for North Carolina.

The researcher entered the data into a Microsoft Excel 97 worksheet with the first row of Excel serving as the header row with the first cell in the first column labeled ID, the first cell in the second column labeled survey number, and the subsequent columns appropriately headed with the questions from the survey. Data in subsequent rows corresponded to a specific survey respondent. The researcher used the validation submenu of the Data menu in Excel to minimize erroneous entries. This feature of Excel flags incorrect data entry by refusing to allow data in the cell that does not match the precoded data. Also, the computer gives a warning sound and a dialog box shows the possible choices for this cell (question). Additionally, a data entry specialist took the surveys and entered the data into the computer for comparison purposes. Statistical Consulting at North Carolina State University used SAS's (Statistical Analysis System, SAS Institute, Cary, NC) Proc Compare, a computer routine, to compare the two data sets. Places where the data disagreed (about 12) were checked with the original surveys and corrections were made. Finally, comments written by the women on the surveys were noted in a word document.

## Variables Used

Variables used in the study are listed in the following tables.

### Table 3: Measurement of Personal Variables

| Variable | Survey Question | Variable Name | | Statistic |
|---|---|---|---|---|
| **Career Path** | Question 5<br>A=1 Advance<br>All others = 0 | Path | Frequency | Logistic Regression |
| **Personal Variables** | | | | |
| **Age** | Question 19 | Age | Mean and Standard Deviation | Logistic Regression |
| **Ethnicity** | | | | |
| Caucasian | Question 20 = 3 | Eth1,2 are all 0 no variable | Frequency | Logistic Regression |
| African American | Question 20 = 1 | Eth1 = 1 if Q20 = 1 | Frequency | Logistic Regression |
| Asian Pacific Islander | Question 20 = 2 | Eth2 = 1 if Q20 = 2* | Frequency | Logistic Regression |
| Hispanic Latino/Latina | Question 20 = 5 | Eth2 = 1 if Q20 = 5* | Frequency | Logistic Regression |
| Native American<br>American Indian<br>Alaskan | Question 20 = 6 | Eth2 = 1 if Q20 = 6* | Frequency | Logistic Regression |
| Filipino | Question 20 = 4 | Eth2 = 1 if Q20 = 4* | Frequency | |
| Other | Question 20 = 7 | Eth2 = 1 if Q20 = 7* | Frequency | |
| **Marital Status** | | | | |
| Single (never married) | Question 21 = 1 | Mar1 = 1 if Q21 = 1 | Frequency | Logistic Regression |
| Married | Question 21 = 2 | Mar1,3,4 are all 0; no variable | Frequency | Logistic Regression |
| Divorced | Question 21 = 3 | Mar3 = 1 if Q21 = 3 | Frequency | Logistic Regression |
| Other | Question 21 = 4 | Mar4 = 1 if Q21 = 4 | Frequency | Logistic Regression |

* Collapsed into one group because of inadequate frequencies.

## Table 3: Measurement of Personal Variables (cont'd)

| Variable | Survey Question | Variable Name | Statistic | |
|---|---|---|---|---|
| **Educational Level** | Question 22 | Edu | Frequency and Mean and Standard Deviation | Logistic Regression |
| **Number of Younger Children** | | | | |
| 0-5 | Question 24 | Child1 | Frequency | Logistic Regression |
| 6-11 | Question 24 | Child2 | Frequency | Logistic Regression |
| 12-17 | Question 24 | Child3 | Frequency | Logistic Regression |
| **Caregiver Presently** | Question 25<br>1= Yes, 0= No | Pres_Ec | Frequency | Logistic Regression |
| **Caregiver Past** | Question 26<br>1=Yes, 0=No | Past_Ec | Frequency | Logistic Regression |
| **State** | Question 27<br>CA=1; NC=0 | St | Frequency | Logistic Regression |

## Table 4: Situational Variables

| Variable | Survey Question | Variable Name | Statistic | |
|---|---|---|---|---|
| **Gender of Supervisor** | Question 11;<br>1=M; 0=F | GSup | Frequency | Logistic Regression |
| **Ethnicity of Supervisor** | Question 12 | | | |
| Caucasian | Question 12 = 3 | Esp1,2, all 0 no variable | Frequency | Logistic Regression |
| African American | Question 12 = 1 | Esp1 = 1 if Q12 = 1 | Frequency | Logistic Regression |
| Asian Pacific Islander | Question 12 = 2 | Esp2 = 1 if Q12 = 2* | Frequency | Logistic Regression |
| Hispanic Latino/Latina | Question 12 = 5 | Esp2 = 1 if Q12 = 5* | Frequency | Logistic Regression |
| Native American American Indian Alaskan | Question 12 = 6 | Esp2 = 1 if Q12 = 6* | Frequency | Logistic Regression |
| Filipino | Question 12 = 4 | Esp2 = 1 if Q12 = 4* | Frequency | |
| Other | Question 12 = 7 | Esp2 = 1 if Q12 = 7* | Frequency | |
| **Administrative Experience** | Question 8 | Adme | Mean<br>Standard Deviation | Logistic Regression |

* Collapsed into one group because of inadequate frequencies.

## Table 4: Situational Variables (cont'd)

| Variable | Survey Question | Variable Name | Statistic | |
|---|---|---|---|---|
| **Years at Current Level** | Question 2 | YLev | Mean<br>Standard Deviation | Logistic Regression |
| **Years at Present Institution** | Question 9 | YIns | Mean<br>Standard Deviation | Logistic Regression |
| **Years in Higher Ed** | Question 10 | YHed | Mean<br>Standard Deviation | Logistic Regression |
| **Current Job Level** | Question 1 | CLev | Frequency<br>Mean and Standard Deviation | Logistic Regression |

## Table 5: Advancement Variables

| Variable | Survey Question | Variable Name | Statistic | |
|---|---|---|---|---|
| **Terminal Degree Activity** | Question 28 = 1 (if Q22 >= 4 or Q23 = Y) | Term | Frequency | Logistic Regression |
| **Willingness to Move** | Question 13<br>1= Not Willing to move<br>2 = Limited Miles within the state<br>3 = Anywhere in the state<br>4 = Limited miles outside the state<br>5 = Anywhere outside the state | Move | Frequency | Logistic Regression |
| **Memberships on Campus Committees** | Question 14<br>0, 1, 2, 3, 4, 5<br>more than 5 = 6 | CCom | Frequency<br>Mean and Standard Deviation | Logistic Regression |
| **External Memberships** | Question 15<br>0, 1, 2, 3, 4, 5; >5 =6 | ECom | Frequency; Mean Standard Deviation | Logistic Regression |
| **Number Upper Level Positions Applied for in last five (5) years** | Question 18 | Appl | Mean<br>Standard Deviation | Logistic Regression |
| **Participation in Formal Leadership Institute** | Question 16<br>1= Yes; 0 = No | Lead | Frequency | Logistic Regression |
| **Mentor/Sponsor** | Question 17<br>1 = Yes; 0 = No | Ment | Frequency | Logistic Regression |

The following variables were presented descriptively and not used in the logistic regression:

- Question 3: What was your administrative level three years ago?
- Question 3a: How long were you at this level?
- Question 4: What was your administrative level seven years ago?
- Question 4a: How long were you at this level?
- Question 5: Which item best describes your career goals for the next five years?
- Question 7: How many steps are you from the president?

**Data Analysis**

In addition to presenting descriptive statistics of a sample in a research project, some form of linear or multiple regression analysis is usually computed. In order to use linear or multiple regression the assumptions of the data must be met which are six according to Long (1997): 1) the dependent variable must be continuous; 2) the dependent variable must be linearly related to the independent variables; 3) the independent variables must be independent of each other; 4) the error term must be zero; 5) the errors must have constant variance (homoscedasticity); and 6) the errors must be normally distributed. When the dependent variable is binary, has two outcomes-success or failure, these assumptions are violated. Thus, researchers use a model like logit or probit, that is subsumed under the category of "generalized linear models" (McCullagh &Nelder, 1989). Models listed under "generalized linear models" include linear regression, logit models, probit models, log-linear models, and multinomial response models for counts (McCullagh & Nelder, 1989). Generalized linear models share similarities in model selection, parameter estimation, prediction of future values, and possess the property of linearity (McCullagh & Nelder, 1989). Logit models, probit models, log-linear models, and multinomial response models for counts are not linear but have exponential distributions which can be transformed into a **linear form** by using a link or an appropriate **transformation function**.

This research study utilized logistic regression as the regression model because the dependent variable was binary meaning there are two categories and are often used to indicate that an event has occurred or that some characteristic is present (Long, 1997). In this study, the event was desire to advance higher in the next five years. In order to better understand logistic regression, mathematical concepts central to this technique are explained, terms defined, and appropriate analogies to multiple regression illustrated.

An important concept in understanding logistic regression is the relationship between an exponential expression and a logarithmic expression. For example,

- $\log_2 8 = 3$ because $2^3 = 8$; $\log_2 8$ is a logarithmic expression and $2^3 = 8$ is an exponential expression; $2$ is the base, $3$ is the exponent, and $8$ is the answer to $2^3$
- $\log_3 81 = 4$ because $3^4 = 81$; $3$ is the base, $4$ is the exponent, and $81$ is the answer to $3^4$
- $\log_5 25 = 2$ because $5^2 = 25$; $5$ is the base, $2$ is the exponent, and $25$ is the answer to $5^2$
- $\log_e(5) = \ln(5) \approx 1.6094$ because $e^{1.6094} \approx 4.9998$; $e$ is the base and is approximately equal to 2.71828, $1.6094$ is the exponent, and $5$ is the answer to $e^{1.6094}$
- if $\log_e\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3)...+...\beta_n(X_n)$ then

$$e^{\alpha+\beta_1(X_1)+\beta_2(X_2)+\beta_3(X_3)+...+...\beta_n(X_n)} = \frac{\pi}{1-\pi}$$

Additionally, the **log of a quotient**, $\log_e\left(\frac{L_0}{L_1}\right)$, is equal to the **difference of the logs**, $\log_e L_0 - \log_e L_1$. This **logarithmic property** works for any base and not just the natural logarithm, **base e**. The following examples illustrate further the understanding of the **log of a quotient** which can be computed by using the **ln** function on a scientific calculator if the base is **e** or the **log** function if the base is 10. When the **base** is **10**, the base is not shown: $\log_{10}(15) = \log(15)$.

- $\log_e\left(\frac{4}{5}\right) = \ln\left(\frac{4}{5}\right) = \ln 4 - \ln 5 \approx -.223$ (using the property)
- $\ln\left(\frac{4}{5}\right) \approx -.223$ (not using the property and computing directly)
- $\ln\left(\frac{1}{3}\right) = \ln 1 - \ln 3 \approx -1.099$ (using the property)
- $\ln\left(\frac{1}{3}\right) \approx -1.099$ (not using the property and computing directly)
- $\log_{10}\left(\frac{7}{8}\right) = \log_{10} 7 - \log_{10} 8 \approx -.058$
- $\log_{10}\left(\frac{7}{8}\right) \approx -.058$

Now, some terms will be defined:

1. **Bernoulli distribution**: the distribution for a binary variable with mean $\pi$ (DeMaris, 1992).
2. **binary variable**: a variable that has only two outcomes such as advance or not advance or success or failure (Agresti & Finlay, 1997) working or not working, voted or did not vote, diseased or not diseased (Long, 1997).

3. **deviance:** the difference between the maximum attainable log likelihood and the log likelihood of the model under consideration (SAS Institute, 1993).

   Deviance is like the residual sum of squares in linear regression and is equal to:

   $$D = -2\log_e\left(\frac{likelihood\ of\ current\ \text{model}}{likelihood\ of\ saturated\ \text{model}}\right) =$$

   $$-2\log_e(likelihood\ of\ current\ \text{model}) - (-2\log_e likelihood\ of\ saturated\ \text{model})$$

4. **dummy variable**: an artificial independent variable that takes on the value of 1 or 0 (Agresti & Finlay, 1997).

5. **interaction**: "when the association between two variables changes as a third variable changes" (Agresti & Finlay, 1997, p. 369).

6. **likelihood function**: expresses the probability of the observed data as a function of the unknown parameters and is denoted by **L** (Hosmer & Lemeshow, 1989) and is a function of $\pi$ (Long, 1997). When $H_0$ is true, $L_0$ is the maximum of the likelihood function and $L_1$ is the maximum for the full model which is the alternative hypothesis, $H_1$ (Agresti & Finlay, 1997). The null hypothesis, $H_0$, states that all parameter coefficients are zero; the alternative hypothesis, $H_1$, states otherwise.

7. **likelihood-ratio test**: compares two models to see if the extra parameters in the complete model equal zero (Agresti & Finlay, 1997). The first likelihood-ratio test computed is to test whether all parameters, except the intercept, equal zero. This is like the global **F** test in ordinary regression. The formula for testing whether all parameters are zero is:

   $$-2\left\{\log_e\left(\frac{L_0}{L_1}\right)\right\} = -2\{\log_e L_0 - \log_e L_1\} = -2\log_e(L_0) - (-2\log_e(L_1))$$

   The coefficient (-2) times the log is used so that the distribution has a Chi-Squared distribution with degrees of freedom (df) equal to the number of parameters in the null hypothesis; $-2\log_e L$ is the **likelihood-ratio test statistic** also called **model chi-squared statistic**. Other likelihood-ratio tests are computed in model selection to test whether or not a parameter is zero. The formula is:

   $$-2\left\{\log_e\left(\frac{L_{WO}}{L_W}\right)\right\} = -2\{\log_e L_{WO} - \log_e L_W\} = -2\log_e(L_{WO}) - (-2\log_e(L_W))$$

   or $-2\log_e\left(\frac{L_{WO}}{L_W}\right)$ where

- $L_{WO}$ is the likelihood function from the model without the parameter(s) of interest and is considered the null hypothesis in model selection.

- $L_W$ is the likelihood function with the parameter(s) of interest.

- Degrees of freedom would be equal to the number of parameters in the null hypothesis. When only one parameter is being tested, degrees of freedom equal one (1).

- Other terms used to describe the likelihood function without the parameter(s) of interest, $L_{WO}$, are **constrained model** or **reduced model**. Likewise, other terms used to describe the likelihood function with the parameter(s) of interest, $L_W$, are **unconstrained** or **full model** (DeMaris, 1992; Aldrich & Nelson, 1984).

8. **logarithm**: a mathematical function of the form:
   $y = \log_a x$, where $a$ is the base, $a > 0$, and $a \neq 1$

9. **logistic regression**: a statisical model used when the dependent variable is binary, has two outcomes like success or failure (Agresti & Finlay, 1997).

10. **logistic distribution function:** the logistic distribution function models a binary outcome. The function is: $Y = \log_e\left(\frac{\pi}{1-\pi}\right)$ or $Y = \ln\left(\frac{\pi}{1-\pi}\right)$ where

    $$\log_e\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1(X_1) + \beta_2(X_2) + \beta_3(X_3)\ldots+\ldots\beta_n(X_n)$$

    $\log_e\left(\frac{\pi}{1-\pi}\right) = \ln\left(\frac{\pi}{1-\pi}\right)$ is read **the natural log of the odds** and both expressions would be called a **logit**.

    **odds** $= \frac{\pi}{1-\pi} = e^{\alpha+\beta_1(X_1)+\beta_2(X_2)+\beta_3(X_3)+\ldots+\ldots\beta_n(X_n)}$

    $\pi$ is the probability that the event occurs and $1-\pi$ is the probability that the event does not occur (DeMaris, 1992).

11. **maximum likelihood estimate:** estimation of the logistic model, value of the parameter that makes the data most likely; this value, $\hat{\pi}$, maximizes the likelihood function (Long, 1997). In linear regression, least squares estimates

minimize a sum of squares function (Agresti & Finlay, 1997). Maximum likelihood estimates are asymptotically normally distributed, the variance is the smallest possible when compared to other estimators, and they are consistent in that when the sample size grows large, the difference between the maximum likelihood estimate and the true parameter approaches zero (Long, 1997). Sample sizes smaller than 100 should not use maximum likelihood estimates while sizes of 500 or more are adequate (Long, 1997). Long (1997) suggests about 10 observations per parameter.

12. **natural logarithm**: a mathematical function belonging to the logarithm family that has a base of "**e**" which is approximately equal to 2.718.

$$y = \log_e x = \ln x$$

13. **odds**: probability of success divided by the probability of failure (Agresti & Finlay, 1997, p. 270), the number of events divided by the number of nonevents (Lottes, Adler, & DeMaris, 1996), or how often something happens in comparison to how often it does not happen (Long, 1997). If the probability of success equals 0.75, then the probability of failure equals 0.25 and the odds of success equal 0.75 divided by 0.25 which is 3.0. This means a success is three times as likely as a failure. Reversing this example, if the probability of success is 0.25, then the probability of failure equals 0.75 and the odds of success equal one-third (1/3) which means a failure is three times as likely as a success. The odds equal one when the probability of success and failure are the same (0.5).

14. **odds ratio**: a measure of association; the ratio of two odds (Agresti & Finlay, 1997). In general, each unit increase in $X_k$ (the kth predictor) multiplies the odds of success by a factor of $e^{\beta_k}$ or the percentage change in the odds is $100\left(e^{\beta_k} - 1\right)$ (DeMaris, 1992). An odds ratio greater than one indicates an increased likelihood of the event; an odds ratio less than one indicates a decreased likelihood of the event (Lottes, Adler, & DeMaris, 1996). The odds ratio is the effect of the kth predictor on the odds and is similar to the partial slope for ordinary regression (Lottes, Adler, & DeMaris, 1996).

### Using Logistic Regression

Step 1: Fit the model. The question is whether or not the independent variables are necessary in order to explain the dependent variable or will the intercept be sufficient. Thus, there are two hypothesis, the null hypothesis $(H_0)$ and the alternative hypothesis $(H_1)$. The null hypothesis states that the parameter coefficients are not necessary and equal to zero; in contrast, the alternative hypothesis states otherwise. For example, a study with four independent variables would have the following null and alternative hypothesis.

$H_0\colon \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$
$H_1\colon$ not all $\beta' s$ are $= 0$

The **likelihood ratio test** would be computed to test if the model was a good fit.

**Likelihood ratio test**: $-2\log_e\left(\frac{L_0}{L_1}\right) = (-2\log_e L_0) - (-2\log_e L_1)$

or $-2(\log_e L_0 - \log_e L_1)$ where

$L_0$ is the maximum likelihood function evaluated for the null hypothesis (only the intercept)

$L_1$ is the maximum likelihood function evaluated for the alternative hypothesis

$-2\log_e$ times the ratio is used so the distribution will have a Chi-Square distribution

SAS prints the $(-2\log_e L_0)$ in the intercept only column and $(-2\log_e L_1)$ in the column "intercept and covariates". The difference between the two $(-2\log_e L_0)$ - $(-2\log_e L_1)$ which is the **likelihood ratio test** is printed in the column "Chi-Square for covariates" and has degrees of freedom equal to the number of parameters in the null hypothesis. For this example, the degrees of freedom would be four. This Chi-Square with four degrees of freedom would be tested for significance.

Step 2: Testing to see whether or not the individual parameters are significant. For this example, the test will be whether or not $\beta_1$ is significant, is $\beta_1 = 0$ . To test this significance, two models will be created. One model, the model without $\beta_1$ will contain only $\beta_2$ , $\beta_3$, and $\beta_4$ and called model without the variable. The second model will be the original model with all of the variables, $\beta_1$, $\beta_2$ , $\beta_3$, and $\beta_4$ . The **likelihood function** will be evaluated for both models and tested with a Chi-Square distribution with one degree of freedom because one variable was omitted, $\beta_1$. The **likelihood ratio test** would be: $-2\log_e\left(\frac{L_{wo}}{L_w}\right) =$

$(-2\log_e L_{wo}) - (-2\log_e L_w)$ .

If this difference is significant, then $\beta_1$ is significant. A second computer analysis is necessary in order to test this significance. In general, to test the significance of the four variables, four computer analysis will be necessary.

Step 3: What is the effect of the independent variable on the dependent variable? The odds ratio, which is similar to partial slope, gives the exact effect of the independent variable. The odds ratio is the multiplicative effect on the odds for each unit increase in the independent variable. Let $\beta_1 = 0.3094$, then the effect of $X_1$ on the odds is $e^{0.3094} = 1.363$. This means that for each unit increase in $X_1$, the odds are multiplied by a factor of $1.363$. Stated in another way, the odds of the event increase $100x(odds\ ratio - 1) = 100x(1.363 - 1) = 36\%$.

Statistical Analysis System (SAS) software was used to fit the logistic model and answer the research questions. Specific research questions for this study were:

**Question 1:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to personal variables {age, ethnicity, marital status, number of younger children who are (0-5 years of age, 6-11 years of age, and 12-17 years of age), elderly caregiver status presently, elderly caregiver status in the last five years, and educational level} and career path?**

**Question 2:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to situational variables {gender of immediate supervisor, number of years of administrative experience, current job level, number of years at current administrative level, number of years (full-time) at present institution, total number of years (full-time) in higher education, and ethnicity of immediate supervisor} and career path?**

Question 3:

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to advancement variables {terminal degree activity, willingness to move, number of campus committees/task forces that served on, number of external committees/task forces that served on, number of upper level positions applied for in the last five years inside and outside of this institution, participation in a leadership institute of more than one day in duration, and sponsor/mentor relationship} and career path?**

The PROC GENMOD procedure from SAS using Type 1 and Type 3 analysis was used first to answer the first research question. The difference between Type 1 analysis and Type 3 analysis is that the order in which the variables are entered is important with Type 1 analysis but not with Type 3 analysis. After using both analysis, Statistical Consulting and the researcher decided to use Type 1 analysis because the analysis from Type 3 did not support the research. Also, using Type 1 analysis matched the results from multiple regression, generalized linear models, and chi-square analysis.

Following the fitting of the first research question along with the two-factor state interactions, all variables with a **p-value** $\leq .10$ were kept and the variables from the second research question along with the two-factor state interactions were added to the model. In model building, a higher **p-value** is used to insure that important variables are not omitted from the final model. Hosmer and Lemeshow (1989) suggest a **p-value** $\leq .25$. Moreover, the rationale for combining significant variables from the first research question with research question 2 variables was to determine if research question 1 variables had an influence on the variables in research question 2. This process continued for research question 3, too, after which the variables with a **p-value** $\leq .10$

from research question 1 and research question 2 were fitted with all the variables from research question 3 and the two-factor state interactions.

From this combination, variables with a **p-value** $\leq .10$ were fitted and formed model 4. Model 4 variables along with the quadratic term, age times age, formed model 5. All variables from model 5 with a **p-value** $\leq .05$ formed the final model to explain the career paths of women administrators in the North Carolina and California Community College Systems. The integration of significant variables from the previous research question with the next research question represents a modification in the research plan which was necessary in order to achieve a sound statistical model of career paths. Additionally, descriptive statistics and cross comparisons were presented using SAS and WINKS software, the Windows version of KWIKSTAT, from TexaSoft in Cedar Hill, Texas.

# CHAPTER 4

## FINDINGS

This study examined the career paths of women administrators in the North Carolina and California Community College Systems. Chapter One discussed the problem and background to the study, listed the research questions, stated the purpose of the study, outlined the significance and limitations of the study, and defined the terms used in the study. Chapter Two, the literature review, was divided into four sections: organizational theory, leadership theory, career development, and appropriate studies on career development variables. Chapter Three examined the research design, population and sample, instrumentation, survey pretesting, data collection, data coding, variables used in the study, and data analysis.

This chapter presents the descriptive statistics of the sample as well as the results of logistic regression to ascertain variables salient to career paths of women administrators in the North Carolina and California Community College Systems. Data for the descriptive statistics come from SAS (Statistical Analysis System, SAS Institute in Cary, North Carolina) and WINKS statistical software, Windows version of KWIKSTAT (TexaSoft in Cedar Hill, Texas). The research questions were analyzed using PROC GENMOD, a SAS routine. Descriptive statistics are presented first, then the analysis of each research question. Some percentages are expressed to two decimal places because of rounding rules so that the total percentage would equal 100 percent.

### Personal Variables

Personal variables for this study, presented in Table 6, include age, ethnicity, marital status, educational level, number of younger children who are 0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age, caregiver presently, and caregiver in the past five years. The final sample size consisted of 643 respondents, 189 from California and 454 from North Carolina. The average age for women instructional administrators in California was 52.8 years of age, and 36 and 66 years were the minimum and maximum, respectively. Seventy-one and nine-tenths percent (71.9%) of the women administrators in California were between the ages of 46 and 59. A smaller percentage of the women was on the outer continuum of this age group with 10.6% in the 39 to 45 age group and 15.3% in the 60-66 age group.

Likewise, in North Carolina, the women were somewhat younger (4 years) than the women in California. The average age for women instructional administrators in North Carolina was 48.2 years of age, and the minimum age was 25, 11 years younger than the minimum age in California; the maximum age was 70, four years older than the maximum age in California. A large percentage (83%) of the women administrators in North Carolina was between the ages of 39 and 59 years of age, about 7 years younger than the California administrators. Fewer women administrators in North Carolina were on the outer edge of this age continuum, 10.6% on the younger side and 6.6% on the older side. Overall, the mean and median age for the women administrators were 49.6 and 50 years of age, respectively, and 82.8% of them were between the ages of 39 and 59 years of age.

Eighty-six and three-tenths percent (86.3%) of the women administrators were Caucasian, and African American women represented the largest minority group (7.93%)

## Personal Variables

**Table 6:** **Frequency Distribution of Personal Variables of Age, Ethnicity, Marital Status, Educational Level, Number of Younger Children (0-5, 6-11, 12-17), Caregiver Presently, and Caregiver in the Last Five Years**

| Personal Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Age, Years:** | | | | | | |
| 25-31 | 0 | 0.0 | 10 | 2.2 | 10 | 1.5 |
| 32-38 | 4 | 2.2 | 38 | 8.4 | 42 | 6.5 |
| 39-45 | 20 | 10.6 | 120 | 26.4 | 140 | 21.8 |
| 46-52 | 67 | 35.4 | 149 | 32.8 | 216 | 33.6 |
| 53-59 | 69 | 36.5 | 107 | 23.6 | 176 | 27.4 |
| 60-66 | 29 | 15.3 | 27 | 5.9 | 56 | 8.7 |
| 67-73 | 0 | 0.0 | 3 | 0.7 | 3 | 0.5 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Ethnicity:** | | | | | | |
| African American | 15 | 7.9 | 36 | 7.9 | 51 | 7.93 |
| Asian/ Pacific Islander | 6 | 3.2 | 3 | 0.7 | 9 | 1.40 |
| Caucasian | 148 | 78.3 | 407 | 89.7 | 555 | 86.30 |
| Filipino | 2 | 1.1 | 0 | 0.0 | 2 | 0.31 |
| Hispanic/ Latino/Latina | 12 | 6.4 | 2 | 0.4 | 14 | 2.20 |
| Native American/ American Indian/Alaskan | 1 | 0.5 | 5 | 1.1 | 6 | 0.93 |
| Other | 5 | 2.6 | 1 | 0.2 | 6 | 0.93 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Marital Status:** | | | | | | |
| Single (never married) | 19 | 10.05 | 38 | 8.4 | 57 | 8.86 |
| Married | 113 | 59.79 | 332 | 73.1 | 445 | 69.21 |
| Divorced | 45 | 23.81 | 66 | 14.5 | 111 | 17.26 |
| Other | 12 | 6.35 | 18 | 4 | 30 | 4.67 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Educational Level:** | | | | | | |
| Associate's | 0 | 0.0 | 21 | 4.6 | 21 | 3.3 |
| Bachelor's | 1 | 0.5 | 57 | 12.6 | 58 | 9.0 |
| Master's | 112 | 59.3 | 317 | 69.8 | 429 | 66.7 |
| Doctorate | 73 | 38.6 | 47 | 10.4 | 120 | 18.7 |
| Professional (D.D.S., M.D., J.D.) | 3 | 1.6 | 12 | 2.6 | 15 | 2.3 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

**Personal Variables (cont'd)**

**Table 6:** **Frequency Distribution of Personal Variables of Age, Ethnicity, Marital Status, Educational Level, Number of Younger Children (0-5, 6-11, 12-17), Caregiver Presently, and Caregiver in the Last Five Years**

| Personal Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Number of Younger Children, Ages 0-5:** | | | | | | |
| 0 Children | 187 | 98.9 | 431 | 95 | 618 | 96.1 |
| 1 Child | 2 | 1.1 | 17 | 3.7 | 19 | 3.0 |
| 2 Children | 0 | 0.0 | 4 | 0.9 | 4 | 0.6 |
| 3 Children | 0 | 0.0 | 2 | 0.4 | 2 | 0.3 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Ages 6-11:** | | | | | | |
| 0 Children | 175 | 92.6 | 388 | 85.5 | 563 | 87.55 |
| 1 Child | 11 | 5.8 | 50 | 11 | 61 | 9.50 |
| 2 Children | 2 | 1.1 | 16 | 3.5 | 18 | 2.80 |
| 3 Children | 1 | 0.5 | 0 | 0 | 1 | 0.15 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Ages 12-17:** | | | | | | |
| 0 Children | 163 | 86.24 | 344 | 75.80 | 507 | 78.80 |
| 1 Child | 18 | 9.50 | 81 | 17.84 | 99 | 15.40 |
| 2 Children | 6 | 3.20 | 26 | 5.70 | 32 | 5.00 |
| 3 Children | 1 | 0.53 | 2 | 0.44 | 3 | 0.50 |
| 4 Children | 1 | 0.53 | 0 | 0.00 | 1 | 0.15 |
| 5 Children | 0 | 0.0 | 1 | 0.22 | 1 | 0.15 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Caregiver Presently:** | | | | | | |
| No | 153 | 81 | 359 | 79 | 512 | 79.6 |
| Yes | 36 | 19 | 95 | 21 | 131 | 20.4 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Caregiver in the Past 5 Years:** | | | | | | |
| No | 134 | 71 | 324 | 71.4 | 493 | 76.7 |
| Yes | 55 | 29 | 130 | 28.6 | 150 | 23.3 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

in both states. In California, Caucasian women administrators represented 78.3% of the administrators; African Americans and Hispanics comprised the largest minority group at 7.9% and 6.4%, respectively, followed by Asians ( 3.2%), Filipinos (1.1%), and other (2.6%). In North Carolina, similar to California, Caucasian women administrators represented almost 90% of the administrators (89.7%), and African American and Native American women administrators represented the two largest minority groups at 7.9% and 1.1%, respectively.

When viewed by marital status, thirteen percent (13%) more of the women administrators in North Carolina (73%) were married than in California (60%). Moreover, only a little more than a quarter of the women in North Carolina (26.9%) were in the single (never married), divorced, or other category, in comparison to 40% of the women in California. Overall, almost 70% (69.2%) of the women were married and 30.8% were in the single (never married) ( 8.86%), divorced (17.26%), and other (4.67%) category.

As Table 6 illustrates, 99.5 % of the women in California had earned a Master's (59.3%), Doctoral (38.6%), or Professional (1.6%) degree, and in North Carolina, this percentage was 82.8%: Master's (69.8%), Doctoral (10.4%), and Professional (2.6%). Women in California's percentage of doctoral degrees was 3.7 times the women's percentage in North Carolina, 38.6% to 10.4%. In addition, seventeen percent (17%) of the women in North Carolina had earned a Bachelor's (12.6%) or an Associate's (4.6%) degree; this was not the case in California where only .5% were in this category. Overall, 87.7 % of the women responded to having earned a Master's

(66.7%), Doctoral (18.7%), or Professional (2.3%) degree, and 12.3% had earned an Associate's (3.3%) or Bachelor's (9%) degree.

The women also responded to the number of children who were 0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age. Ninety-eight and nine-tenths percent (98.9%) of the women in California and 95% of the women in North Carolina had no children in the 0 to 5 age group. Two women in North Carolina had three children in this age group. In the 6 to 11 years old age group, 92.6% of the women in California and 85.5% of the women in North Carolina had no children. North Carolina's percentage was twice the California's percentage in this age group for women with 1 or 2 children, 14.5% compared to 6.9% for California. One respondent in California had three children in this age group.

Additionally, in the 12 to 17 years old age group, 86.24% of the women in California and 75.8% of the women in North Carolina had no children. Once again, women administrators in North Carolina had slightly less than twice the percentage of children in this age group for women with 1 or 2 children, 23.54% in North Carolina and 12.7% in California. In this age group, three women, two in North Carolina and one in California, had three children. One California administrator responded to having four children and one North Carolina respondent had five children in this age group. Overall, 96.1% of the women had no children in the 0 to 5 years old category, and 3% had 1 child in this category. In the 6 to 11 years old age group, 87.5% of the women did not have any children, 9.5% reported having one child, and 2.8% reported two children. Finally, in the 12 to 17 years old category, 78.8% indicated no children, 15.4% one child, and 5% two children.

Further, the women administrators indicated whether or not they were presently taking care of a parent or relative and if they had done so in the past five years. In California and North Carolina, 81% and 79%, respectively, of the women were not presently caregivers, and in the past five years, both California and North Carolina women reported that 71% were not caregivers compared to 29% who were. Overall, 79.6% of the women were presently not caregivers, and 76.7% had not been caregivers in the past five years.

Auxiliary to the personal variables as a group, three personal variables--marital status, educational level, and age--were examined by current administrative level. Table 7 displays marital status by current administrative level for both states with the percentages rounded to one decimal place, which would account for the slight difference from Table 6 in which the percentages are given to two decimal places. As Table 7 shows, the percentages by administrative level mirror the percentages of the overall group, and in North Carolina at least 70% of the women were married for each administrative level except for the associate or assistant vice president for instruction in which 60% were married, which equaled the overall marital percentage for California.

Similarly, Table 8 shows the mean educational level and age by current administrative level for each state. California's mean educational level for four of the six administrative positions was higher than North Carolina's, significantly higher for department chairs and associate or assistant vice presidents for instruction, but equal for

## Table 7: Marital Status by Current Administrative Level

| Administrative Level | Single | | Married | | Divorced | | Other | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| **Current Administrative Level in CA:** | | | | | | | | |
| Department Chair, Lead (11) Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 2 | 18.2 | 7 | 63.6 | 2 | 18.2 | 0 | 0 |
| Associate or Assistant (16) Dean | 2 | 12.5 | 8 | 50.0 | 3 | 18.8 | 3 | 18.8 |
| Division Chair or Dean (112) | 12 | 10.7 | 69 | 61.6 | 25 | 22.3 | 6 | 5.4 |
| Associate or Assistant Vice President for Instruction (16) | 1 | 6.3 | 9 | 56.2 | 6 | 37.5 | 0 | 0 |
| Chief Instructional Officer (27) | 2 | 7.4 | 14 | 51.9 | 8 | 29.6 | 3 | 11.1 |
| Executive Vice President, (7) Associate or Assistant Chancellor, or Provost | 0 | 0 | 6 | 85.7 | 1 | 14.3 | 0 | 0 |
| **Total** | **19** | **10.1** | **113** | **59.8** | **45** | **23.8** | **12** | **6.4** |
| **Current Administrative Level in NC:** | | | | | | | | |
| Department Chair, Lead (330) Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 28 | 8.5 | 236 | 71.5 | 50 | 15.1 | 16 | 4.9 |
| Associate or Assistant (15) Dean | 2 | 13.3 | 13 | 86.7 | 0 | 0 | 0 | 0 |
| Division Chair or Dean (81) | 4 | 4.9 | 63 | 77.8 | 12 | 14.8 | 2 | 2.5 |
| Associate or Assistant Vice (5) President for Instruction | 1 | 20 | 3 | 60.0 | 1 | 20 | 0 | 0 |
| Chief Instructional Officer (16) | 1 | 6.2 | 12 | 75.0 | 3 | 18.8 | 0 | 0 |
| Executive Vice President, (7) Associate or Assistant Chancellor, or Provost | 2 | 28.6 | 5 | 71.4 | 0 | 0 | 0 | 0 |
| **Total** | **38** | **8.4** | **332** | **73.1** | **66** | **14.5** | **18** | **4** |

**Table 8: Mean Educational Level and Age by Current Administrative Level**

| Administrative Level | Educational Level (CA) | | Educational Level (NC) | | Age | |
|---|---|---|---|---|---|---|
| | | | | | CA | NC |
| | N | M | N | M | M | M |
| **Current Administrative Level:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 11 | 3.2 | 330 | 2.8 | 52.4 | 47.3 |
| Associate or Assistant Dean | 16 | 3.1 | 15 | 3.1 | 50.4 | 48.8 |
| Division Chair or Dean | 112 | 3.4 | 81 | 3.2 | 53.0 | 50.4 |
| Associate or Assistant Vice President for Instruction | 16 | 3.5 | 5 | 3.0 | 52.9 | 49.8 |
| Chief Instructional Officer | 27 | 3.6 | 16 | 3.5 | 53.8 | 52.2 |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 7 | 3.7 | 7 | 3.7 | 51.0 | 56.7 |
| **Total** | **189** | | **454** | | | |

**Note: M = Mean**

associate or assistant deans and executive vice presidents. Additionally, the women in California were older at each administrative level except for the executive vice president level in which North Carolina's mean age was 56.7 years compared to California's 51 years.

## Situational Variables

Situational variables for this study, presented in Table 9, include gender of supervisor, ethnicity of supervisor, administrative experience, current job level, years at current level, years at present institution, and years in higher education. The gender of

## Situational Variables

**Table 9:** **Frequency Distribution of Situational Variables of Gender of Supervisor, Ethnicity of Supervisor, Administrative Experience, Current Job Level, Years at Current Level, Years at Present Institution, and Years in Higher Education**

| Situational Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Gender of Supervisor:** | | | | | | |
| Male | 98 | 51.85 | 237 | 52.2 | 335 | 52.1 |
| Female | 91 | 48.15 | 217 | 47.8 | 308 | 47.9 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Ethnicity of Supervisor:** | | | | | | |
| African American | 22 | 11.64 | 34 | 7.49 | 56 | 8.70 |
| Asian/Pacific Islander | 17 | 9.00 | 5 | 1.10 | 22 | 3.42 |
| Caucasian | 129 | 68.25 | 405 | 89.21 | 534 | 83.10 |
| Filipino | 0 | 0 | 0 | 0 | 0 | 0 |
| Hispanic/Latino/Latina | 15 | 7.94 | 2 | 0.44 | 17 | 2.60 |
| Native American/ American Indian/Alaskan | 6 | 3.17 | 7 | 1.54 | 13 | 2.02 |
| Other | 0 | 0 | 1 | 0.22 | 1 | 0.16 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Administrative Experience:** | | | | | | |
| 0-6 Years | 26 | 13.75 | 131 | 28.85 | 157 | 24.42 |
| 7-13 | 74 | 39.15 | 146 | 32.15 | 220 | 34.20 |
| 14-20 | 58 | 30.70 | 122 | 26.90 | 180 | 28.00 |
| 21-27 | 27 | 14.3 | 44 | 9.70 | 71 | 11.04 |
| 28-34 | 3 | 1.60 | 11 | 2.40 | 14 | 2.18 |
| 35-41 | 1 | 0.50 | 0 | 0 | 1 | 0.16 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Current Job Level:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 11 | 5.82 | 330 | 72.70 | 341 | 53.03 |
| Associate or Assistant Dean | 16 | 8.46 | 15 | 3.30 | 31 | 4.82 |
| Division Chair or Dean | 112 | 59.26 | 81 | 17.84 | 193 | 30.01 |

**Situational Variables (cont'd)**

**Table 9: Frequency Distribution of Situational Variables of Gender of Supervisor, Ethnicity of Supervisor, Administrative Experience, Current Job Level, Years at Current Level, Years at Present Institution, and Years in Higher Education**

| Situational Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Current Job Level, cont'd:** | | | | | | |
| Associate or Assistant Vice President for Instruction | 16 | 8.47 | 5 | 1.10 | 21 | 3.27 |
| Chief Instructional Officer | 27 | 14.29 | 16 | 3.52 | 43 | 6.69 |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 7 | 3.70 | 7 | 1.54 | 14 | 2.18 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Years at Current Job Level:** | | | | | | |
| 0-4.5 | 91 | 48.00 | 194 | 42.73 | 285 | 44.32 |
| 5-9.5 | 65 | 34.4 | 116 | 25.55 | 181 | 28.15 |
| 10-14.5 | 26 | 13.8 | 74 | 16.3 | 100 | 15.55 |
| 15-19.5 | 5 | 2.7 | 38 | 8.37 | 43 | 6.69 |
| 20-24.5 | 2 | 1.10 | 22 | 4.85 | 24 | 3.73 |
| 25-29.5 | 0 | 0 | 9 | 1.98 | 9 | 1.40 |
| 30-34.5 | 0 | 0 | 1 | 0.22 | 1 | 0.16 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Years at Present Institution:** | | | | | | |
| 0-4.5 | 48 | 25.4 | 90 | 19.82 | 138 | 21.46 |
| 5-9.5 | 30 | 15.87 | 98 | 21.59 | 138 | 19.91 |
| 10-14.5 | 38 | 20.10 | 71 | 15.64 | 109 | 16.95 |
| 15-19.5 | 23 | 12.17 | 75 | 16.52 | 98 | 15.24 |
| 20-24.5 | 29 | 15.34 | 65 | 14.32 | 94 | 14.62 |
| 25-29.5 | 15 | 7.94 | 49 | 10.79 | 64 | 9.95 |
| 30-34.5 | 5 | 2.65 | 5 | 1.10 | 10 | 1.56 |
| 35-39.5 | 1 | 0.53 | 1 | 0.22 | 2 | 0.31 |
| **Total** | **189** | **100%** | **454** | **100%** | **653** | **100%** |

**Situational Variables (cont'd)**

**Table 9: Frequency Distribution of Situational Variables of Gender of Supervisor, Ethnicity of Supervisor, Administrative Experience, Current Job Level, Years at Current Level, Years at Present Institution, and Years in Higher Education**

| Situational Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Years in Higher Education:** | | | | | | |
| 0-5.5 | 6 | 3.17 | 74 | 16.3 | 80 | 12.44 |
| 6-11.5 | 17 | 9 | 95 | 20.93 | 112 | 17.42 |
| 12-17.5 | 25 | 13.23 | 83 | 18.28 | 108 | 16.79 |
| 18-23.5 | 73 | 38.62 | 88 | 19.38 | 161 | 25.04 |
| 24-29.5 | 46 | 24.34 | 96 | 21.15 | 142 | 22.08 |
| 30-35.5 | 21 | 11.11 | 18 | 3.96 | 39 | 6.07 |
| 36-41.5 | 1 | 0.53 | 0 | 0 | 1 | 0.16 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

supervisors for both states was similar, around 50% male and 50% female, while the exact percentages for male supervisors were 51.85% in California and 52.2% in North Carolina, compared to female percentages of 48.15% in California and 47.8% in North Carolina. Ethnicity of supervisor mirrored the ethnicity of the Caucasian women administrators in North Carolina, 89% Caucasian, which was not the case in California where the percentage dropped 10% from the ethnicity of the Caucasian women administrators, 78.3% to 68% for ethnicity of supervisors. California revealed more diverse supervisors than North Carolina: African American supervisors (11.64% to 7.49%), Asian supervisors (9% to 1.1%), Hispanic supervisors (7.94% to .44%), and Native American supervisors (3.17% to 1.54%), and no Filipino supervisors. Overall, 83% of the supervisors were Caucasians, and African Americans accounted for the largest minority (8.7%) followed by Asians (3.4%), Hispanics (2.6%), and Native Americans (2%).

The women also indicated their administrative experience on the survey, and 11.7 and 13.7 years typified the average number of years of administrative experience in North Carolina and California, respectively. The minimum number of years of experience was 0 years in both states, and the maximum number of years was 32 years in North Carolina and 36 years in California. The median number of years of administrative experience in North Carolina was 10 years and 13 years in California. North Carolina's percentage was twice California's percentage (28.85% to 13.75%) in the category of 0 to 6 years of administrative experience. Eighty-seven and nine-tenths percent (87.9%) of the women in North Carolina had 0 to 20 years of administrative experience compared to 83.6% in California. When viewed from 7 to 27 years of experience, California women administrators had an edge of 15% over the women in North Carolina, 84.15% in California and 68.75% in North Carolina. Overall, the mean number of years of administrative experience was 12, one year more than the median of 11 years. Most of the women were in the category of 0 to 20 years of experience (86.62%), and the remainder (11.04%) were in the 21 to 27 years category. A small percentage (2.34%) of the women was on the outer higher continuum, 28 years or more, of administrative experience.

In addition to administrative experience, the women indicated their current administrative level. At every level except the first level, California reported a higher percentage of women administrators. In North Carolina, 72.7% of the women were department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators; in contrast, only 5.82% of the women in California served at this level. Associate or assistant deans in California and North Carolina were 8.46% and 3.3%, respectively; division chairs or deans were 59.26% in California and 17.84% in North Carolina; associate or assistant vice presidents for instruction in California were 8.47% and 1.1% in North Carolina; chief instructional officers in California and North Carolina were 14.29% and 3.5%, respectively; and executive vice presidents, associate or assistant chancellors, or provosts were 3.7% in California and 1.54% in North Carolina. Overall, 53% of the women were level one administrators, department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators; 30% were level three administrators, division chairs or deans; and 6.6% were chief instructional officers.

The minimum number of years at their current administrative level in North Carolina and California was 0 years while the maximum number of years in North Carolina was 31 years compared to 21 years in California, and the median number of years at the current administrative level in both states was 5 years. Although the mean for the number of years at the current administrative level in North Carolina was one and nine-tenths (1.9) years longer than in California, 7.4 to 5.5 years, respectively, the yearly categories revealed a different picture. In the 0 to 9.5 years category, 82.4% of the women in California and 68.28% of the women in North Carolina were in this category. Moreover, in the 10 to 24 years category, 17.6% of the women in California and 29.52% of the women in North Carolina were in this category. Furthermore, 15.42% of the women in North Carolina had been at their level 15 years or more compared to 3.8% in

California. Overall, the mean number of years at the current administrative level was six and eight-tenths years, and the median number of years was five. Seventy-two percent (72%) of the women had been at their level from 0 to 9.5 years, and 15.5% reported they had been at their level from 10 to 14.5 years. Table 10 illustrates that at every level, except the associate or assistant dean and chief instructional officer position, the women in California remained fewer years at a level.

Additionally, the women were similar in the number of years they had been employed at the present institution; for both states, the minimum and maximum number of years at the present institution were 0 and 35 years, respectively. Also, the mean number of years at the present institution for North Carolina and California was 12.8 and 12.6 years, respectively, and the median for both states equaled 12 years. In both states, forty-one percent (41%) of the women had been employed at the present institution 0 to 9.5 years, 32% had been employed at the present institution 10 to 19.5 years, and from 11 to 12 percent reported more than 25 years at the institution. Overall, the mean and median for the group were 12.7 and 12 years, respectively. Fifty-eight percent (58%) of the women had been at the present institution from 0 to 14.5 years, and 42% had been at the institution more than 15 years. By administrative level, Table 10 highlights that the women in North Carolina had been employed at the present institution longer for all levels except the chief instructional officer's position. At one position, the executive vice president, associate or assistant chancellor, or provost position, the women in North Carolina's mean average number of years was two and three-tenths times the California's mean average, 19.9 years compared to 8.6 years.

**Table 10: Mean Years at Current Level and Mean Years at the Institution by Current Administrative Level**

| Administrative Level | Years at Current Level (CA) | | Years at Current Level (NC) | | Years at the Institution | |
|---|---|---|---|---|---|---|
| | N | M | N | M | CA | NC |
| **Current Administrative Level:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 11 | 5.4 | 330 | 7.8 | 10.8 | 11.9 |
| Associate or Assistant Dean | 16 | 3.9 | 15 | 3.9 | 12.3 | 16.1 |
| Division Chair or Dean | 112 | 6.2 | 81 | 7.1 | 13.0 | 15.4 |
| Associate or Assistant Vice President for Instruction | 16 | 4.8 | 5 | 5.6 | 14.4 | 21.4 |
| Chief Instructional Officer | 27 | 5.1 | 16 | 4.5 | 11.8 | 11.2 |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 7 | 3.5 | 7 | 5.1 | 8.6 | 19.9 |
| **Total** | **189** | | **454** | | | |

The women also indicated their number of years in higher education; 0 was the minimum number of years in North Carolina, and 2 years was the minimum in California. The maximum number of years in higher education for North Carolina was 35 years compared to 40 years in California; half of the women in California had been employed in higher education for 22 years compared to 15 years for the women in North Carolina; and the mean number of years in higher education in North Carolina was 15.6 years while California's was 20.8 years. In the 0 to 5.5 years category, North Carolina's percentage was five times California's (16% to 3%); in the 18 to 29.5 years category, California's percentage was 62.96% compared to North Carolina's 40.53%; and in the more than 30 years category, California's percentage was three times North Carolina's

(11.64% to 3.96%). Overall, the mean and median number of years in higher education were 17 and 18 years, respectively; 45% of the women had served in higher education 0 to 17.5 years; and 47% had been employed in higher education 18 to 29.5 years.

**Advancement Variables**

Presented in Table 11 are the advancement variables for the study, which included terminal degree activity (earned a doctorate or was working towards a doctorate), willingness to move, number of campus committees/taskforces served on in the past year, number of external committees/taskforces served on in the past year, participation in a leadership institute of more than one day in duration, have a mentor/sponsor, and number of upper level positions applied for in the last five years. When the women were compared on terminal degree activity, nineteen and eight-tenths percent (19.8%, n = 90) of the women in North Carolina were engaged in terminal degree activity compared to forty-seven and six-tenths percent (47.6%, n = 90) in California. Overall, twenty-eight percent (28%, n = 180) of the women had either earned a doctorate or were working towards one. Furthermore, Table 12 shows that at every administrative level, except for the chief instructional officer's position, the women in California had a higher terminal degree percentage than North Carolina.

As Table 11 depicts, the women were similar in their willingness to move. In California, 14.8% (n = 28) of the women were unwilling to move compared to 12.5% (n = 57) in North Carolina and 13.2% (n = 85) overall. Moreover, sixty-five and nine-tenths percent (65.9%, n = 299) of the women in North Carolina were willing to move

## Advancement Variables

**Table 11:** **Frequency Distribution of Advancement Variables of Terminal Degree Activity, Willingness to Move, Campus Committees External Committees, Leadership Institute Participation, Mentor/Sponsor, Applications in the Last Five Years for Upper Level Positions**

| Advancement Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Terminal Degree Activity:** | | | | | | |
| No | 99 | 52.4 | 364 | 80.2 | 463 | 72 |
| Yes | 90 | 47.6 | 90 | 19.8 | 180 | 28 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Willingness to Move:** | | | | | | |
| Not Willing to Move | 28 | 14.8 | 57 | 12.5 | 85 | 13.2 |
| Limited Miles Within the State | 119 | 63 | 299 | 65.9 | 418 | 65 |
| Anywhere Within the State | 19 | 10 | 31 | 6.8 | 50 | 7.8 |
| Limited Miles Outside the State | 7 | 3.7 | 28 | 6.2 | 35 | 5.4 |
| Anywhere Outside the State | 16 | 8.5 | 39 | 8.6 | 55 | 8.6 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Campus Committees/ Taskforces:** | | | | | | |
| Zero (0) | 2 | 1.1 | 17 | 3.7 | 19 | 3 |
| One (1) | 4 | 2.0 | 49 | 10.8 | 53 | 8.2 |
| Two (2) | 5 | 2.7 | 90 | 19.8 | 95 | 14.8 |
| Three (3) | 20 | 10.6 | 118 | 26 | 138 | 21.5 |
| Four (4) | 24 | 12.7 | 57 | 12.6 | 81 | 12.6 |
| Five (5) | 14 | 7.4 | 25 | 5.5 | 39 | 6.0 |
| More than Five | 120 | 63.5 | 98 | 21.6 | 218 | 33.9 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **External Committees/ Taskforces:** | | | | | | |
| Zero (0) | 13 | 6.9 | 78 | 17.2 | 91 | 14.2 |
| One (1) | 23 | 12.2 | 111 | 24.4 | 134 | 20.8 |
| Two (2) | 43 | 22.8 | 111 | 24.4 | 154 | 24 |
| Three (3) | 40 | 21.2 | 70 | 15.4 | 110 | 17 |
| Four (4) | 21 | 11 | 37 | 8.2 | 58 | 9 |
| Five (5) | 7 | 3.7 | 14 | 3.1 | 21 | 3.3 |
| More than Five | 42 | 22.2 | 33 | 7.3 | 75 | 11.7 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

**Advancement Variables (cont'd)**

**Table 11: Frequency Distribution of Advancement Variables of Terminal Degree Activity, Willingness to Move, Campus Committees External Committees, Leadership Institute Participation, Mentor/Sponsor, Applications in the Last Five Years for Upper Level Positions**

| Advancement Variables | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Participation in Leadership Institute:** | | | | | | |
| No | 36 | 19 | 211 | 46 | 247 | 38 |
| Yes | 153 | 81 | 243 | 54 | 396 | 62 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Mentor/Sponsor:** | | | | | | |
| No | 102 | 54 | 249 | 55 | 351 | 55 |
| Yes | 87 | 46 | 205 | 45 | 292 | 45 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |
| **Applications in the Last Five Years for Upper Level Positions:** | | | | | | |
| Zero (0) | 77 | 40.7 | 338 | 74.5 | 415 | 64.5 |
| One (1) | 47 | 25 | 83 | 18.3 | 130 | 20.2 |
| Two (2) | 24 | 12.7 | 19 | 4.2 | 43 | 6.7 |
| Three (3_ | 19 | 10.1 | 6 | 1.3 | 25 | 3.9 |
| Four (4) | 4 | 2.1 | 1 | 0.2 | 5 | 0.8 |
| Five (5) | 4 | 2.1 | 4 | 0.9 | 8 | 1.2 |
| Six (6) | 4 | 2.1 | 2 | 0.4 | 6 | 0.9 |
| Eight (8) | 1 | 0.5 | 0 | 0 | 1 | 0.16 |
| Ten (10) | 3 | 1.6 | 0 | 0 | 3 | 0.5 |
| Fifteen (15) | 1 | 0.5 | 0 | 0 | 1 | 0.16 |
| Twenty (20) | 2 | 1.1 | 1 | 0.2 | 3 | 0.5 |
| Twenty-five (25) | 1 | 0.5 | 0 | 0 | 1 | 0.16 |
| One hundred ten (110) | 1 | 0.5 | 0 | 0 | 1 | 0.16 |
| One hundred twenty (120) | 1 | 0.5 | 0 | 0 | 1 | 0.16 |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

**Table 12:** **Terminal Degree, Willingness to Move, External Committees, and Participation in a Leadership Institute by Administrative Level**

| Administrative Level | Terminal Degree | | Willingness to Move | | External Committees | | Leadership Institute | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | M | N | M | N | % |
| **Current Administrative Level in CA (189):** | | | | | | | | |
| Department Chair, Lead (11) Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 3 | 27.3 | 11 | 1.8 | 11 | 1.6 | 7 | 63.6 |
| Associate or Assistant (16) Dean | 4 | 33.3 | 16 | 2.4 | 16 | 2.2 | 12 | 75 |
| Division Chair or Dean (112) | 53 | 47.3 | 112 | 2.2 | 112 | 3.2 | 90 | 80 |
| Associate or Assistant Vice President for Instruction (16) | 10 | 62.5 | 16 | 2.3 | 16 | 3.6 | 15 | 94 |
| Chief Instructional Officer (27) | 15 | 53.6 | 27 | 2.5 | 27 | 4.0 | 23 | 85 |
| Executive Vice President, (7) Associate or Assistant Chancellor, or Provost | 5 | 71.4 | 7 | 2.9 | 7 | 4.1 | 6 | 86 |
| **Total** | **90** | | **189** | | **189** | | **153** | |
| **Current Administrative Level in NC (454):** | | | | | | | | |
| Department Chair, Lead (330) Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 45 | 13.6 | 330 | 2.3 | 330 | 1.8 | 160 | 48 |
| Associate or Assistant (15) Dean | 4 | 26.7 | 15 | 2.0 | 15 | 2.1 | 11 | 73 |
| Division Chair or Dean (81) | 24 | 29.6 | 81 | 2.3 | 81 | 2.8 | 51 | 63 |
| Associate or Assistant Vice (5) President for Instruction | 2 | 40.0 | 5 | 2.0 | 5 | 4.0 | 3 | 60 |
| Chief Instructional Officer (16) | 11 | 68.7 | 16 | 3.5 | 16 | 3.8 | 14 | 87.5 |
| Executive Vice President, (7) Associate or Assistant Chancellor, or Provost | 4 | 57.0 | 7 | 2.9 | 7 | 4.3 | 4 | 57 |
| **Total** | **90** | | **454** | | **454** | | **243** | |

limited miles within state compared to 63% (n = 119) in California and 65% (n = 418) overall. For both groups and overall, only 8.5% were willing to move anywhere outside the state. In California, Table 12 outlines that the department chairs were less willing to move while the chief instructional officers and executive vice presidents were more willing to move. Similarly, in North Carolina, the chief instructional officers and the executive vice presidents were very willing to move, both had means of willingness to move of 3.5 and 2.9, respectively.

The women also responded to the number of campus committees/taskforces that they served on in the past year, and three was the mean and the median number of committees/taskforces for women in North Carolina. As a matter of fact, 60% (n = 274) of the women served on three or less. The reverse was true in California because five and six, respectively, were the mean and median number of committees served on in the past year. Eighty-three and six-tenths percent (83.6%, n = 158) of the women in California served on four or more campus committees/taskforces. Overall, the mean number of campus committees/taskforces served on was almost four (3.8), and the median number was four.

Likewise, the mean and median number of external committees/taskforces for the women in North Carolina were two. Sixty-six percent (66%, n = 300) of the women in North Carolina served on two or less external committees compared to 34% (n = 154) who served on three or more. Three represented the mean and median number of external committees for the women in California. Forty-one and nine-tenths percent

(41.9%, n = 79) of the women served on two or fewer external committees/taskforces while 58.1% (n = 110) served on three or more, 24.1% higher than the women in North Carolina. Overall, the mean number of external committees/taskforces was 2.4 compared to the median of two. Fifty-nine percent (59%, n = 379) of the women served on two or fewer external committees/taskforces compared to 41% (n = 264) who served on three or more. Comparing by administrative level in Table 12, women in the associate or assistant vice president for instruction and the executive vice president positions in North Carolina served on more external committees at 4.0 and 4.3, respectively, than the women in California who served on to 3.6 and 4.1, respectively. Also, as administrative level increased, the number of external committees increased as well in both states.

Table 11 also shows how the women responded to participating in a leadership institute of more than one day in duration. Eighty-one percent (81%, n = 153) of the women in California had participated in a leadership institute of more than one day in duration compared to 54% (n = 243) of the women in North Carolina. Overall, 62% (n = 396) of the women reported participating in a leadership institute of more than one day in duration. Each administrative level in California, except the chief instructional officer level, participated in more leadership institutes than the women in North Carolina as illustrated by Table 12.

Responses given by the women to having a mentor/sponsor were almost identical. Fifty-four percent (54%, n = 102) of the women in California and 55% (n = 249) of the women in North Carolina responded “no” to having a mentor/sponsor compared to 46% (n = 87) in California and 45% (n = 205) in North Carolina who responded “yes”. Overall 55% (n = 351) did not have a mentor/sponsor and 45% (n = 292) did have one.

When queried about the number of upper level positions applied for in the last five years, 92.8% ( n = 421) of the women in North Carolina had applied for one upper level position and one respondent had applied for 20. In California, 88.5 % (n = 167) of the women had applied for three or fewer in the past five years and two respondents indicated they had applied for 110 and 120 upper level positions. Both of these women were called to confirm that a mistake had not been made on the survey and they responded that the number was correct. The respondent who applied for 120 upper level positions had lost her job, so she was job hunting.

### Seven Year Tracking of Career Paths

The women indicated their career level seven years ago, three years ago, and current level. Tables 13 and 14 show the positions occupied by the women in the past seven years in California and North Carolina, respectively. For both states, the number of executive vice presidents, associate or assistant chancellors, or provosts increased, almost doubled in California (from 4 to 7, n = 189) and tripled (from 2 to 7, n = 454) in North Carolina in seven years. Additionally, the number of chief instructional officers doubled in California (from 13 to 27, n = 189) and quadrupled in North Carolina (from 4 to 16, n = 454) in seven years. Moreover, the division chairs or deans increased 24% (from 67 to 112, n = 189) in California, and 9% (42 to 81, n = 454) in North Carolina. For California, the associate or assistant vice presidents for instruction doubled,

## Seven Year Tracking of Career Paths

**Table 13: Frequency Distribution of Career Level Seven Years Ago, Three Years Ago, and Currently for California**

| Seven Year Tracking of Career Paths | Seven Years Number | Three Years Number | Current Level Number | Seven Years Percent | Three Years Percent | Current Level Percent |
|---|---|---|---|---|---|---|
| **Administrative Level:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 46 | 30 | 11 | 24.3 | 15.9 | 5.8 |
| Associate or Assistant Dean | 15 | 15 | 16 | 7.9 | 7.9 | 8.5 |
| Division Chair or Dean | 67 | 88 | 112 | 35.5 | 46.6 | 59.2 |
| Associate or Assistant Vice President for Instruction | 6 | 14 | 16 | 3.2 | 7.4 | 8.5 |
| Chief Instructional Officer | 13 | 24 | 27 | 6.9 | 12.7 | 14.3 |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 4 | 4 | 7 | 2.1 | 2.1 | 3.7 |
| Other (Teaching or Other) | 38 | 14 | 0 | 20.1 | 7.4 | 0 |
| **Total** | **189** | **189** | **189** | **100%** | **100%** | **100%** |

**Seven Year Tracking of Career Paths**

**Table 14: Frequency Distribution of Career Level Seven Years Ago, Three Years Ago, and Currently for North Carolina**

| Seven Year Tracking of Career Paths | Seven Years Number | Three Years Number | Current Level Number | Seven Years Percent | Three Years Percent | Current Level Percent |
|---|---|---|---|---|---|---|
| **Administrative Level:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 201 | 265 | 330 | 44.3 | 58.4 | 72.7 |
| Associate or Assistant Dean | 7 | 9 | 15 | 1.5 | 2 | 3.3 |
| Division Chair or Dean | 42 | 61 | 81 | 9.3 | 13.4 | 18 |
| Associate or Assistant Vice President for Instruction | 6 | 6 | 5 | 1.3 | 1.3 | 1 |
| Chief Instructional Officer | 4 | 9 | 16 | .9 | 2 | 3.5 |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 2 | 5 | 7 | .4 | 1.1 | 1.5 |
| Other (Teaching or Other) | 189 | 99 | 0 | 41.6 | 21.8 | 0 |
| **Total** | **451**[a] | **454** | **454** | **99.3%**[a] | **100%** | **100%** |

a. Three people did not report a level seven years ago.

and the associate or assistant deans remained stable; the reverse was true for North Carolina. The states were very unlike in the department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators. Women in California began leaving these positions seven years earlier than North Carolina and started moving up the hierarchy; in contrast, women in North Carolina began leaving teaching or other noninstructional positions and began moving into the department chair, lead instructor, program coordinator, or satellite or off-campus positions. The survey did not ask for positions beyond seven years; however, research by Twombly (1986), Grey (1987), Sagaria and Dickens (1990), and Sagaria and Johnsrud (1992) reveals that women administrators in community colleges probably followed a path from another community college, a four-year institution, or a public school, in that order, before entering their present community college.

In addition to the past seven years, the women indicated what their goals were for the next five years. Table 15 presents this information which shows that 40.7% (n = 77) of the women in California desired to advance higher compared to 28.6% (n = 130) of the women in North Carolina, a 12.2% differential. Moreover, 18.5% (n = 35) of the California women wanted to retire while 14.5% of the women in North Carolina desired the same. California's slightly higher retirement percentage may have been related to the fact that the average age for women in California was 52.8 years of age compared to 48.2 years of age for women in North Carolina. Also, almost half of the women in North Carolina (47.6%, n = 216) wished to remain at their current level compared to only 32.8% (n = 62) in California, a 14.8 % difference.

**Table 15: Frequency Distribution of Career Goals for the Next Five Years**

| Career Goals in the Next Five Years | CA (N=189) | | NC (N=454) | | Overall (N=643) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Career Goals:** | | | | | | |
| Advance to a Higher Level | 77 | 40.7% | 130 | 28.6 % | 207 | 32.2% |
| Remain at My Current Level | 62 | 32.8% | 216 | 47.6 % | 278 | 43.2% |
| Drop Back a Position or Level | 6 | 3.2% | 8 | 1.8 % | 14 | 2.2% |
| Leave the Community College System | 4 | 2.1% | 19 | 4.2 % | 23 | 3.6% |
| Retire | 35 | 18.5% | 66 | 14.5 % | 101 | 15.7% |
| Change Career Track | 3 | 1.6% | 10 | 2.2 % | 13 | 2.0% |
| Other | 2 | 1.1% | 5 | 1.1 % | 7 | 1.1% |
| **Total** | **189** | **100%** | **454** | **100%** | **643** | **100%** |

Overall, 32.2% (n = 207) of the women aspired to higher positions, 43.2% (n = 278) wanted to remain at their current level, and 15.7% (n = 101) wanted to retire.

Of those who desired to advance to higher positions, Table 16 presents the positions the women coveted. For the position of department chair, lead instructor, program coordinator, or satellite or off-campus coordinator, 1.3% (n = 1) of the women in California and 4% (n = 5) of the women in North Carolina desired this position. Only the women in North Carolina desired to be an associate or assistant dean (14%, n = 18). Likewise, only 9% (n = 7) of the women in California aspired to be a division dean or chair compared to 41.5% (n=54) of the women in North Carolina. The women were similar in their desire for the associate or assistant vice president for instruction, 14.3% (n = 11) for California and 10.7% (n = 14) for North Carolina. For the position of chief instructional officer, 36.4% (n = 28) of the women in California and 13.1% (n = 17) in North Carolina wanted this position. Additionally, for the position of president, superintendent, superintendent/president, or chancellor of a district, 26% (n = 20) of the women in California and 9% (n = 12) of the women in North Carolina hoped to attain this position. Overall, 29.5% (n = 61) of the women wished to be a division chair or dean, 21.7% (n = 45) desired to be a chief instructional officer, and 15.4% (n = 32) wished to be a president, superintendent, superintendent/president, or chancellor of a district.

**Statistical Analysis**

SAS' PROC GENMOD procedure, which generates results for generalized linear models of which logistic regression belongs, generated the results for the regression analysis (SAS Institute, 1993). PROC Logistic can also be used for

**Table 16:** **Frequency Distribution of Positions Desired in the Next Five Years**

| Position Desired in the Next Five Years | CA (N=77) | | NC (N=130) | | Overall (N=207) | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Position Desired:** | | | | | | |
| Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator | 1 | 1.3 % | 5 | 4% | 6 | 2.9% |
| Associate or Assistant Dean | 0 | 0 % | 18 | 14 % | 18 | 8.7 % |
| Division Chair or Dean | 7 | 9 % | 54 | 41.5 % | 61 | 29.5 % |
| Associate or Assistant Vice President for Instruction | 11 | 14.3 % | 14 | 10.7 % | 25 | 12.1 % |
| Chief Instructional Officer | 28 | 36.4 % | 17 | 13.1 % | 45 | 21.7 % |
| Executive Vice President, Associate or Assistant Chancellor, or Provost | 10 | 13 % | 10 | 7.7 % | 20 | 9.7 % |
| President, Superintendent, Superintendent/ President, or Chancellor of a District | 20 | 26 % | 12 | 9 % | 32 | 15.4 % |
| **Total** | **77** | **100%** | **130** | **100%** | **207** | **100%** |

logistic regression but has some limitations. For example, with PROC Logistic, to assess the significance of each independent variable in a study of 15 independent variables, 15 computer comparisons of the complete model (all 15 variables) and the model without each of the individual variables have to be conducted. Also, PROC Logistic estimates the parameters using the Wald statistic (the square of the parameter estimate divided by its standard error), which is not recommended by researchers who use logistic regression (Hosmer & Lemeshow, 1989).

In contrast, PROC GENMOD assesses the significance of each independent variable in one computer iteration using the method of successive models and estimates parameters using the maximum likelihood function. PROC GENMOD begins with only the intercept in the model for which the likelihood ratio statistic, -2Log L, is printed in the column labeled "Deviance" (SAS Institute, 1993), which is the difference between the log likelihood of the current model and the saturated model (Hosmer & Lemeshow, 1989) and similar to residual sum of squares in linear regression (Hosmer & Lemeshow, 1989). The significance of each independent variable is computed by successively subtracting the current deviance from the previous deviance, which gives a Chi-Square statistic with one degree of freedom. This procedure continues until all independent variables are added to the model (PROC GENMOD does this automatically).

### Understanding the Column Labels

The label given for the first column is **"parameter"** and in this column are the names of the independent variables and the intercept. Column 2, **parameter estimates**, contains the estimates of the parameters from the logistic regression. Column 3, **odds ratio**, gives the odds of advancement for each unit increase in the independent variable (similar to slope in linear regression) except for the dummy variables of ethnicity and marital status. For ethnicity, the odds ratio indicates the odds of advancement for African Americans, Asians, Hispanics, Native Americans, Filipinos, and Others in comparison to Caucasians. Correspondingly, the odds ratio for marital status indicates the odds of advancement for singles (never married), divorcees, and others in comparison to married women. Column 4 gives the **standard error** and column 5 gives the **degrees of freedom.** Column 6, **-2 Log L (Deviance)**, gives the maximum likelihood estimate for the intercept and each independent variable. Finally, column 7 shows the **difference** between the current model (which contains all of the variables before that line or row in addition to the new variable) and the preceding model. This difference is a Chi-Square difference with one degree of freedom and is used to assess the significance of the additional independent variable.

## Research Questions

### Research Question 1:

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to personal variables {age, ethnicity, marital status, number of younger children (0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age), elderly caregiver status presently, elderly caregiver status in the past five years, and educational level} and career path?**

Results of logistic regression analysis are presented in Table 17. With logistic regression, the **dependent variable** is the odds of success, which in this study was the "**desire to advance higher in the next five years.**" Four concepts from logistic regression will be used throughout the presentation of results: **model fit, sign of the**

**Table 17: Logistic Regression Results from Personal Variables of {Age, Ethnicity, Marital Status, Educational Level, Number of Younger Children (0-5, 6-11, 12-17), Caregiver Presently, and Caregiver in the Last Five Years}, State, and Career Path (N=643)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2 Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Intercept | -0.0097 | | 0.9111 | 0 | 808.0125 | |
| Age | -0.0645 | 0.9375 | 0.0162 | 1 | 791.6594 | 16.35<br><0.0001* |
| Child2 | 0.0200 | 1.020 | 0.2416 | 1 | 791.1660 | 0.49<br>0.4824 |
| Child3 | -0.0984 | 0.9063 | 0.1833 | 1 | 791.1130 | 0.05<br>0.8180 |
| Edu | 0.6706 | 1.9554 | 0.1675 | 1 | 756.8019 | 34.31<br><0.0001* |
| Ethnicity | | | | 2 | 753.7520 | 3.05<br>0.2176 |
| Eth1 | 0.1502 | 1.1621 | 0.3938 | 1 | | |
| Eth2 | 0.8294 | 2.2919 | 0.6547 | 1 | | |
| Marital Status | | | | 3 | 752.9709 | 0.78<br>0.8540 |
| Mar1 | -0.2407 | 0.7861 | 0.4217 | 1 | | |
| Mar3 | 0.5334 | 1.7047 | 0.3160 | 1 | | |
| Mar4 | -0.1040 | 0.9012 | 0.6108 | 1 | | |
| Pres_Ec | -0.4309 | 0.6499 | 0.3482 | 1 | 752.7467 | 0.22<br>0.6359 |
| Past_Ec | 0.6401 | 1.8967 | 0.3106 | 1 | 748.2640 | 4.48<br>0.0342* |
| St | 4.0977 | 60.2 | 2.3982 | 1 | 740.8114 | 7.45<br>0.0063* |
| Age*St | -0.0664 | 0.9358 | 0.0391 | 1 | 737.7869 | 3.02<br>0.0820* |
| Child2*St | -0.8026 | 0.4482 | 0.5437 | 1 | 736.2628 | 1.52<br>0.2170 |
| Child3*St | 0.4430 | 1.5574 | 0.3916 | 1 | 734.4383 | 1.82<br>0.1768 |
| Edu*St | -0.0162 | 0.9839 | 0.3562 | 1 | 734.4259 | 0.01<br>0.9116 |
| St*Ethnicity | | | | 2 | 731.4201 | 3.01<br>0.2225 |
| St*Eth1 | 1.1211 | | 0.7367 | 1 | | |
| St*Eth2 | -0.8162 | | 0.8099 | 1 | | |
| St*Marital | | | | 3 | 723.1883 | 8.23<br>0.0415* |
| St*Mar1 | 0.3057 | | 0.6834 | 1 | | |

**Table 17 cont'd**

**Table 17: Logistic Regression Results from Personal Variables of {Age, Ethnicity, Marital Status, Educational Level, Number of Younger Children (0-5, 6-11, 12-17), Caregiver Presently, and Caregiver in the Last Five Years}, State, and Career Path (N=643)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| St*Mar3 | -1.2772 | | 0.5391 | 1 | | |
| St*Mar4 | 0.6872 | | 0.9021 | 1 | | |
| Pres_Ec*St | 0.4188 | 1.5201 | 0.6521 | 1 | 722.4940 | 0.69<br>0.4047 |
| Past_Ec*St | -0.0060 | 0.9940 | 0.5792 | 1 | 722.4939 | 0.00<br>0.9918 |
| **Model 1 Fit**: | | | | | | |
| $-2\,Log_e(Intercept\ Only) - [-2\,Log_e(All\ Independent\ Variables)]$ | | | | | | $< 0.0001$* |
| 808.0125 – 722.4939 = 85.5186 (Chi-Square) with 23 DF | | | | | | |

Note. Child2 = 6 to 11 years of age, Child3 = 12 to 17 years of age, Edu = educational level,
Eth1 = African American, Eth2 = Asian/Pacific Islander, Hispanic/Latino/Latina, Native American/American Indian/Alaskan, Filipino, and Other, Eth1-2 are zeros = Caucasian,
Mar1 = single (never married), Mar3 = divorced, Mar4 = other, Mar1,3,4 are zeros = married,
Pres_Ec = caregiver presently, Past_Ec = caregiver in the past five years,
St = state (1 = California, 0 = North Carolina).
* Indicate significant p-values.

**parameters**, **significance of the variables**, and the **odds ratio**. For research question 1, a complete presentation will be given and for the other research questions, only major points will be presented. Children in the 0 to 5 years of age group could not be analyzed because of too many zeros, there were only 25 data points (25 people with children in this age group) and 618 zeros (people without children in this age group). The model was a good fit because the intercept only could not explain career path as evidenced by the significant **p-value** of .0001. Table 17 shows a negative parameter coefficient for three of the main effect independent variables: age, child3, and present caregiver. This indicated that the odds of desiring to advance higher in the next five years decreased as age increased, as the number of children 12 to 17 years of age increased, and if the woman was a caregiver at the time of the study.

For the other variables with a positive parameter coefficient, a positive relationship existed between the odds of desiring to advance and the variable. As educational level increased, the desire to advance increased. Ethnicity and marital status were compared to dummy variables and the omitted category. For ethnicity, two ethnic groups were formed, African Americans and Other, and the omitted category was Caucasian; for marital status the omitted category was married. The ethnic group other consisted of Asians, Hispanics, Native Americans and Other collapsed together because of errors that occurred analyzing the data as a result of zero cell counts in the North Carolina data set when the groups were considered individually. African Americans and the Other ethnic group desired to advance higher in the next five years in comparison to Caucasians. Moreover, women who were caregivers in the past related positively to desiring to advance higher in the next five years, and being a resident of California was positively related to wanting to advance as well.

Beyond examining the **parameter coefficient**, the **odds ratio**, $e^{\beta_k}$, explains the exact effect that each independent variable has on the odds of desiring to advance for each unit increase in the independent variable with the exception of dummy variables, which are compared to the omitted category. When the **odds ratio** is less than one, the odds are reduced multiplicatively by this factor, decreasing the likelihood of the event;

moreover, when the **odds ratio** is greater than one, the odds are increased multiplicatively by this factor, increasing the likelihood of the event. When the odds ratio equals **1**, or a number close to **1** like **1.03** or **1.06**, then in actuality, the **odds** are about the **same** for **advancement** for each unit increase of the independent variable or dummy comparison. The following discussion on **odds ratio** is given only to help first time logistic regression readers understand the principles of logistic regression. When the independent variable is not significant, there is no discussion of the **odds ratio**.

Beginning with children between the ages of 12 to 17, each child whose age was 12 to 17 years of age decreased the odds of desiring to advance by 9.37% : 100 x (odds ratio –1) = 100 x (0.9063 – 1) = -9.37%. For each degree, the odds of wanting to advance increased 95.5%, [100 x (1.9554 – 1)] = 95.54%. For dummy variables the comparison was against the omitted category; thus, the odds of wanting to advance for African Americans were 1.16 times the odds for Caucasians, and the odds for the other ethnic group were 2.29 times the odds for Caucasians. If the woman was taking care of a parent or relative at the time of the study, present caregiver, this reduced the odds of desiring to advance by a factor of 0.6499, or stated differently, the odds of desiring to advance for women who were not caregivers at the time of the study were 1.54 times the odds of those who were (see Appendix N). The odds of desiring to advance for women who were past caregivers were 1.9 times the odds of women who were not past caregivers, and the odds of desiring to advance for women in California were 60 times as large as the odds for women in North Carolina which changed significantly in the final model when all of the variables had been added.

This first regression analysis will be called **model 1** for cross referencing purposes. Four main effect variables: age, education, past caregiver, and state were significant in **model 1** and two interaction terms. The main effect variable age must be discussed with the interaction term in order to determine the odds of advancement. There were no differences in the odds of desiring to advance for education and past eldercare between the two states. In both states, the odds of desiring to advance for women with a Bachelor's degree were 1.95 times the odds of women with an Associate's degree; the odds for women with a Master's degree were 1.95 times the odds of women with a Bachelor's degree; and the odds for women with a Doctorate were 1.95 times the odds of women with a Master's degree. The odds of desiring to advance for women with a Doctorate were 3.8 times the odds of women with a Bachelor's (there are two steps from Bachelor's degree to Doctorate, so the odds to the second power $(1.9554)^2 = 3.82$ ). Likewise, in both states, the odds of desiring to advance for women who had taken care of a relative in the past, the past caregiver variable, were 1.89 times the odds of women who had not taken care of a relative in the past.

Moreover, the state variable was significant, which indicated that the states were different and the odds ratio in this model was extremely high: the odds of desiring to advance for women in California were 60 times the odds of the women in North Carolina. There were differences between the states in desiring to advance when age and marital status were considered in this model. In California, the desire to advance decreased 12.3% for each year increase in age compared to 6.25% in North Carolina. This was computed by using the main effect variable **age** and the interaction variable

**age *st** which equals: $-0.0645age - 0.0664age * st$. Factoring the age variable out yields: $age(-0.0645 - 0.0664st)$, and replacing the state variable, st, with 1 for California gives $age(-0.0645-.0664) = -0.1309age$. The odds ratio for California is now $e^{-0.1309} = 0.8773$, which is the same as saying $100(0.8773-1) = -12.3\%$; likewise for North Carolina, let state, st, equal 0. This gives $age(-0.0645 - 0.0664 * 0) = -0.0645age$ and now the odds ratio for North Carolina is now $e^{-0.0645} = 0.9375$, which is the same as saying $100(0.9375-1) = -6.25\%$.

Additionally, the odds of desiring to advance for singles in California were 1.07 times the odds of married women (about the same) compared to North Carolina where the odds of desiring to advance for married women were 1.27 times the odds of single women (see Appendix N). Also, the odds of desiring to advance for married women in California were 2.10 times the odds of divorced women, which was in contrast to divorced women in North Carolina, whose odds of desiring to advance were 1.70 times the odds of married women. Finally, the odds of desiring to advance for women in the other category in California were 1.79 times the odds of married women, which differed in North Carolina because the odds of desiring to advance for married women were 1.10 times the odds of women in the other category. Thus, the odds of desiring to advance for singles and married women in California were almost the same, divorced and married women favored married women, and other and married women favored women in the other category. In North Carolina, only divorced women had higher odds of desiring to advance when compared to married women.

This ends the discussion of the significant variables in this model, which included **age** and the interaction term **age times state**, **educational level**, **state**, **past eldercare**, and **state times marital status**. No differences between the states were found for the odds of desiring to advance when educational level and past eldercare were examined; however, differences did exist for age and marital status. Further, the state variable was significant, which illuminated the existence of differences between the two states.

Following the analysis of research question 1, all independent variables with a **p-value** $\leq .10$ were included with the variables from research question 2. In model building, a higher p-value is used to ensure that important variables are not omitted from the final model, and Hosmer and Lemeshow (1989) suggest a **p-value** $\leq .25$. Moreover, the rationale for combining significant variables from the first research question with research question 2 variables was to determine if research question 1 variables had an influence on the variables in research question 2. From research question 1, six variables were included with research question 2: age, age times state, educational level, state, past eldercare, and marital status times state.

**Research Question 2:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to situational variables {gender of immediate supervisor, number of years of administrative experience, number of years at current administrative level, number of years at present institution, total number of years in higher education, ethnicity of supervisor, and current job level} and career path?**

From Table 18, the significant variables in this model (**model 2,** p-value ≤.10 ) were seven main effect variables: educational level, past eldercare, state, years at level, years at the institution, current level, and gender of supervisor along with two interaction variables, age times state and marital status times state. An important note is that administrative experience and ethnicity of supervisor were not significant. For each increase in educational level, the odds of desiring to advance increased 78.1% (100*(1.7812-1)); the odds of desiring to advance for a past caregiver was 1.59 times the odds of a woman who was not a past caregiver (odds ratio = 1.5987; for dummy variables percent increases are not used); the odds of desiring to advance for women in California were 38.83 times the odds of women in North Carolina; the odds ratio for years at level was 0.9784, which equated to a 2.16% reduction for each year at an administrative level (100 x (0.9784 – 1) = -2.16%).

Likewise, the odds ratio for years at the institution was 0.9824 which suggested that for each year at the institution the odds of desiring to advance decreased 1.76% (100 x (0.9824 – 1)); the odds ratio for current administrative level was 1.2815 which revealed that each increase in administrative level increased the odds of desiring to advance 28.15% (100 x (1.2815 – 1)); and the odds ratio for gender of supervisor was 1.3327 which meant that the odds of desiring to advance for women with male supervisors were 1.33 times the odds of women with female supervisors.

Additionally, the states were different on two variables: age and marital status. For each year increase in age, the odds of desiring to advance decreased 10.27% (100* (0.8977-1)) for women in California and 5.88% (100*(0.9412-1)) in North

**Table 18: Logistic Regression Results from Situational Variables {Gender of Immediate Supervisor, Number of Years of Administrative Experience, Number of Years at Current Administrative Level, Number of Years at Present Institution, Total Number of Years in Higher Education, Ethnicity of Supervisor, and Current Job Level} and Career Path (N=643)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Intercept | | | 0.8948 | | 808.0125 | |
| Age | -0.0606 | 0.9412 | 0.0194 | 1 | 791.6594 | 16.35<br><0.0001* |
| Edu | 0.5773 | 1.7812 | 0.1557 | 1 | 757.1839 | 34.48<br><0.0001* |
| Marital Status | | | | 3 | 755.9877 | 1.20<br>0.7539 |
| Mar1 | -0.3628 | 0.6957 | 0.4088 | 1 | | |
| Mar3 | 0.6022 | 1.8261 | 0.3188 | 1 | | |
| Mar4 | 0.2515 | 1.2860 | 0.6161 | 1 | | |
| Past_Ec | 0.4692 | 1.5987 | 0.2099 | 1 | 752.2335 | 3.75<br>0.0527* |
| St | 3.6592 | 38.83 | 1.9298 | 1 | 744.0958 | 8.14<br>0.0043* |
| Age*St | -0.0473 | 0.9538 | 0.0415 | 1 | 741.2306 | 2.87<br>0.0905* |
| St*Marital | | | | 3 | 734.3418 | 6.89<br>0.0755* |
| St*Mar1 | 0.3484 | 1.4168 | 0.6962 | 1 | | |
| St*Mar3 | -1.2770 | 0.2789 | 0.5387 | 1 | | |
| St*Mar4 | 0.8729 | 2.3938 | 0.9274 | 1 | | |
| Adme | 0.0079 | 1.0079 | 0.0222 | 1 | 733.6447 | 0.70<br>0.4038 |
| YLev | -0.0218 | 0.9784 | 0.0276 | 1 | 728.4781 | 5.17<br>0.0230* |
| YIns | -0.0178 | 0.9824 | 0.0245 | 1 | 721.5508 | 6.93<br>0.0085* |
| YHed | -0.0108 | 0.9893 | 0.0260 | 1 | 719.3258 | 2.22<br>0.1358 |
| CLev | 0.2480 | 1.2815 | 0.1072 | 1 | 714.3321 | 4.99<br>0.0254* |
| GSup | 0.2872 | 1.3327 | 0.2325 | 1 | 710.9246 | 3.41<br>0.0649* |
| ESup | | | | 2 | 708.8659 | 2.06<br>0.3572 |
| ESup1 | -0.6995 | 0.4968 | 0.5094 | 1 | | |
| ESup2 | -0.6405 | 0.5270 | 0.7959 | 1 | | |
| St*Adme | -0.0452 | 0.9558 | 0.0368 | 1 | 707.6828 | 1.18<br>0.2767 |

**Table 18 cont'd**

**Table 18: Logistic Regression Results from Situational Variables {Gender of Immediate Supervisor, Number of Years of Administrative Experience, Number of Years at Current Administrative Level, Number of Years at Present Institution, Total Number of Years in Higher Education, Ethnicity of Supervisor, and Current Job Level} and Career Path (N=643)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| St*YLev | 0.0445 | 1.0455 | 0.0554 | 1 | 707.1478 | 0.54<br>0.4645 |
| St*YIns | -0.0634 | 0.9386 | 0.0343 | 1 | 704.9449 | 2.20<br>0.1378 |
| St*YHed | 0.0596 | 1.0614 | 0.0405 | 1 | 703.9147 | 1.03<br>0.3101 |
| St*CLev | -0.2976 | 0.7426 | 0.1962 | 1 | 701.4315 | 2.48<br>0.1151 |
| St*GSup | 0.0529 | 1.0543 | 0.4170 | 1 | 701.4313 | 0.00<br>0.9899 |
| St*ESup | | | | 2 | 699.1364 | 2.29<br>0.3174 |
| St*ESup1 | 1.0999 | 3.0039 | | | | |
| St*ESup2 | 0.2363 | 1.2666 | | | | |

**Model 2 Fit**: $-2\,Log_e(\textit{Intercept only}) - \left[-2\,Log_e(\textit{All Independent Variables})\right]$ <0.0001*

808.0125 – 699.1364 = 108.8761 (Chi-Square) with 27 DF

Note. Edu = educational level, Mar1=single (never married), Mar3=divorced, Mar4=other, Mar1,3,4 are zeros=married, Past_Ec= caregiver in the past five years, ESup1 = African American Supervisor, ESup2 = Asian/Pacific Islander, Hispanic/Latino/Latina, Native American/American Indian/Alaskan, Filipino, and Other Supervisor, ESup1-2 are zeros = Caucasian Supervisor, St = state (1 = California, 0 = North Carolina), GSup = gender of supervisor, Adme = years of administrative experience, YLev = years at current level, YIns = years at present institution, YHed = years in higher education, CLev = current level

* Indicate significant p-values.

Carolina. Moreover, singles and married women in California were almost equal in the odds of desiring to advance because the odds ratio for singles when compared to married women was 1.01 (an odds ratio close to **one** means the odds are almost the same). In contrast, the odds of desiring to advance for married women in North Carolina were 1.44 times the odds of singles; the odds of desiring to advance for married women in California were 1.96 times the odds of divorced women, which varied from divorced women in North Carolina, whose odds were 1.83 times the odds of married women; and the odds of desiring to advance for women in the other category were 3.08 and 1.29 times the odds of married women in California and North Carolina, respectively. In summary, the odds of desiring to advance were the same in both states for educational level, past eldercare, years at level, years at the institution, current administrative level, and gender of supervisor but differed for age, marital status, and state. These significant variables, along with variables from research question 3, were entered into model 3. The sample size for model 3 and the subsequent models were reduced to 641 because of the omission of two women in California who had an extreme number of applications, 120 and 110, respectively. Removing the two women did not change the logistic regression results.

### Research Question3:

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to advancement strategies {terminal degree activity, willingness to move, number of campus committees/taskforces that served on, number of external committees/taskforces that served on, number of upper level positions applied for in the last five years, participation in a leadership institute of more than one day in duration, and sponsor/mentor relationship} and career path?**

Table 19 contains the results of significant variables from research question 1, research question 2, and all variables from research question 3, forming **model 3**. Main effect variables age, educational level, past eldercare, state, years at level, years at

**Table 19: Logistic Regression Results from Advancement Variables {Willingness to Move, Campus Committees/Taskforces, External Committees/Taskforces, Applications for Upper Level Positions in the Last Five Years, Terminal Degree Activity, Participation in a Leadership Institute of more than one day, and Mentor/Sponsor Relationship} and Career Path (N=641)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Intercept | | | 1.0249 | | 804.9677 | |
| Age | -0.0564 | 0.9452 | 0.0184 | 1 | 788.4524 | 16.52<br><0.0001* |
| Edu | -0.0067 | 0.9933 | 0.1987 | 1 | 753.2980 | 35.15<br><0.0001* |
| Marital Status | | | | 3 | 752.1629 | 1.14<br>0.7686 |
| Mar1 | -0.3278 | 0.7205 | 0.4563 | | | |
| Mar3 | 0.4490 | 1.5667 | 0.3609 | | | |
| Mar4 | -0.4409 | 0.6435 | 0.6932 | | | |
| Past_Ec | 0.6419 | 1.9000 | 0.2314 | 1 | 748.3461 | 3.82<br>0.0507* |
| St | 2.3310 | 10.2882 | 2.0236 | 1 | 740.4488 | 7.90<br>0.0050* |
| Age*St | -0.0281 | | 0.0363 | 1 | 737.5456 | 2.90<br>0.0884* |
| Marital*St | | | | 3 | 730.2880 | 7.26<br>0.0641* |
| Mar1*St | 0.1438 | | 0.7479 | | | |
| Mar3*St | -1.3418 | | 0.6094 | | | |
| Mar4*St | 1.1919 | | 0.9964 | | | |
| YLev | -0.0070 | 0.9930 | 0.0226 | 1 | 724.8450 | 5.44<br>0.0196* |
| YIns | -0.0263 | 0.9740 | 0.0158 | 1 | 718.0672 | 6.78<br>0.0092* |
| CLev | -0.0873 | 0.9164 | 0.1061 | 1 | 711.5270 | 6.54<br>0.0105* |
| GSup | 0.2102 | 1.2339 | 0.2098 | 1 | 708.0019 | 3.53<br>0.0604* |
| Move | 0.2270 | 1.2548 | 0.1193 | 1 | 688.4893 | 19.51<br><0.0001* |
| CCom | 0.1008 | 1.1061 | 0.0759 | 1 | 683.2915 | 5.20<br>0.0226* |
| ECom | 0.1979 | 1.2188 | 0.0797 | 1 | 674.5802 | 8.71<br>0.0032* |

Table 19 cont'd

**Table 19: Logistic Regression Results from Advancement Variables {Willingness to Move, Campus Committees/Taskforces, External Committees/Taskforces, Applications for Upper Level Positions in the Last Five Years, Terminal Degree Activity, Participation in a Leadership Institute of more than one day, and Mentor/Sponsor Relationship} and Career Path (N=641)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Appl | 0.7098 | 2.0336 | 0.1912 | 1 | 661.2281 | 13.35<br>0.0003* |
| Term | 1.1212 | 3.0685 | 0.3619 | 1 | 646.9578 | 14.27<br>0.0002* |
| Lead | 0.7605 | 2.1393 | 0.2607 | 1 | 637.6272 | 9.33<br>0.0023* |
| Ment | -0.3186 | 0.7272 | 0.2583 | 1 | 637.5037 | 0.12<br>0.7252 |
| Move*St | 0.3272 |  | 0.2273 | 1 | 636.4243 | 1.08<br>0.2988 |
| CCom*St | -0.0836 |  | 0.1476 | 1 | 635.0656 | 1.36<br>0.2438 |
| ECom*St | -0.1593 |  | 0.1267 | 1 | 632.0135 | 3.05<br>0.0806* |
| Appl*St | -0.6424 |  | 0.2001 | 1 | 618.6307 | 13.38<br>0.0003* |
| Term*St | -0.3510 |  | 0.4806 | 1 | 618.1843 | 0.45<br>0.5040 |
| Lead*St | -0.4849 |  | 0.5616 | 1 | 617.7432 | 0.44<br>0.5066 |
| Ment*St | 0.7939 |  | 0.4524 | 1 | 614.6692 | 3.07<br>0.0796* |

**Model 3 Fit:** $-2\,Log_e(\textit{Intercept only}) - \left[-2\,Log_e(\textit{All Independent Variables})\right]$ <0.0001*

804.9677 – 614.6692 = 190.2985 (Chi-Square) DF = 29

Note. Edu = educational level, Mar1= single (never married), Mar3= divorced, Mar4= other, Mar1,3,4 are zeros = married, Past_Ec= caregiver in the past five years, YLev= years at level, YIns= years at institution, CLev=current administrative level, GSup= gender of supervisor, Move = willingness to move, CCom = campus committees/taskforces, ECom = external committees/taskforces, Appl = applications in the last five years, Term = terminal degree activity (have a doctorate or working on one),
Lead = participation in a leadership institute of more than one day in duration, Ment = have a mentor/sponsor, St = state (1 = California, 0 = North Carolina)
* Indicate significant p-values.

the institution, current administrative level, and gender of supervisor were still significant at the **.10 level** as were the interaction terms age times state (age*st), and marital times state (marital*st). The main effect variable marital status was not significant, but because the interaction term was significant, marital status had to be included in the model. Six main effect variables from research question 3 (willingness to move, campus committees, external committees, applications, terminal degree activity, and leadership institute participation) were significant along with three interaction terms (external committees times state, applications times state, and mentoring times state). Odds of desiring to advance for **model 3** show that the odds of desiring to advance were the same for both states except for those cases in which there was an interaction with the state variable. Odds for **model 3** are presented below:

- the odds decreased 0.67% for each increase in degree (this model only)
- the odds of desiring to advance for women who were caregivers in the past were 1.9 times the odds of women who were not caregivers in the past
- the odds of desiring to advance for women in California were 10.2 times the odds of women in North Carolina
- the odds decreased 0.70% for each year at an administrative level
- the odds decreased 2.6% for each year at the institution
- the odds decreased 8.36% for each increase in administrative level
- the odds of desiring to advance for women with male supervisors were 1.23 times the odds of women with female supervisors
- the odds increased 25% for each level of willingness to move

- * the odds increased 10.6% for each additional campus committee/taskforce

- * the odds of desiring to advance for women who were engaged in terminal degree activity were 3.06 times the odds of women who were not engaged in terminal degree activity

- * the odds of desiring to advance for women who had participated in a leadership institute were 2.13 times the odds of women who had not participated in a leadership institute

- * each year increase in age decreased the desire to advance by 8.10% and 5.48% in California and North Carolina, respectively

- * the odds of desiring to advance for married women were 1.2 and 1.38 times the odds of singles in California and North Carolina, respectively

- * the odds of desiring to advance for married women in California were 2.44 times the odds of divorced women, in contrast to divorced women in North Carolina whose odds were 1.57 times the odds of married women

- * the odds of desiring to advance for women in the other category in California were 2.11 times the odds of married women; in North Carolina the odds of desiring to advance for married women were 1.55 times the odds of women in the other category

- * the odds increased 3.9% and 21.88% for each additional external committee served on in California and North Carolina, respectively

- * the odds increased 6.97% and 103% for each application for an upper level position in California and North Carolina, respectively

- * the odds of desiring to advance for women with mentors in California were 1.6 times the odds of women without mentors which deviated from the women with mentors in North Carolina because the odds of desiring to advance for women without mentors were 1.4 times the odds of women with mentors

Significant variables (**p-value** $\leq .10$) from **model 3** are shown in Table 20 (**model 4**). All variables from Table 20 (**model 4**) with a **p-value** $\leq .05$, along with the quadratic term age times age, were analyzed using logistic regression and the results are

**Table 20:** **Logistic Regression of Significant Variables from Model 3 (N=641)**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2 Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Intercept | | | 1.0054 | | 804.9677 | |
| Age | -0.0555 | | 0.0183 | 1 | 788.4524 | 16.52<br><0.0001* |
| Edu | 0.0091 | 1.009 | 0.1978 | 1 | 753.2980 | 35.15<br><0.0001* |
| Marital Status | | | | 3 | 752.1629 | 1.14<br>0.7686 |
| Mar1 | -0.3613 | | 0.4515 | | | |
| Mar3 | 0.3857 | | 0.3576 | | | |
| Mar4 | -0.4528 | | 0.6865 | | | |
| Past_Ec | 0.6382 | 1.89 | 0.2296 | 1 | 748.3461 | 3.82<br>0.0507* |
| St | 2.3881 | 10.8928 | 1.9293 | 1 | 740.4488 | 7.90<br>0.0050* |
| Age*St | -0.0319 | | 0.0358 | 1 | 737.5456 | 2.90<br>0.0884* |
| Marital*State | | | | 3 | 730.2880 | 7.26<br>0.0641* |
| Mar1*St | 0.2396 | 0.7331 | | | | |
| Mar3*St | -1.1608 | 0.5907 | | | | |
| Mar4*St | 1.3737 | 0.9866 | | | | |
| YLev | -0.0090 | 0.9910 | 0.0224 | 1 | 724.8450 | 5.44<br>0.0196* |
| YIns | -0.0243 | 0.9759 | 0.0155 | 1 | 718.0672 | 6.78<br>0.0092* |
| CLev | -0.0799 | 0.9232 | 0.1048 | 1 | 711.5270 | 6.54<br>0.0105* |
| GSup | 0.1901 | 1.21 | 0.2076 | 1 | 708.0019 | 3.53<br>0.0604* |
| Move | 0.3212 | 1.378 | 0.0999 | 1 | 688.4893 | 19.51<br><0.0001* |
| CCom | 0.0769 | 1.0799 | 0.0660 | 1 | 683.2915 | 5.20<br>0.0226* |
| ECom | 0.2096 | 1.233 | 0.0783 | 1 | 674.5802 | 8.71<br>0.0032* |
| Appl | 0.7126 | | 0.1892 | 1 | 661.2281 | 13.35<br>0.0003* |
| Term | 0.9388 | 2.5569 | 0.3015 | 1 | 646.9578 | 14.27<br>0.0002* |
| Lead | 0.6658 | 1.946 | 0.2312 | 1 | 637.6272 | 9.33<br>0.0023* |

**Table 20 cont'd**

**Table 20: Logistic Regression of Significant Variables from Model 3**

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Ment | -0.3062 | | 0.2564 | 1 | 637.5037 | 0.12<br>0.7252 |
| ECom*St | -0.1915 | | 0.1217 | 1 | 633.9234 | 3.58<br>0.0585* |
| Appl*St | -0.6292 | | 0.1968 | 1 | 622.0595 | 11.86<br>0.0006* |
| Ment*St | 0.7954 | | 0.4452 | 1 | 618.8554 | 3.20<br>0.0735* |
| **Model 4 Fit:** | $-2\,Log_e(\textit{Intercept only}) - \left[-2\,Log_e(\textit{All Independent Variables})\right]$<br>804.9677 – 618.8554 = 186.1123 (Chi-Square) with 25 DF | | | | | <0.0001* |

Note. Edu = educational level, Past_Ec = caregiver in the past five years, Mar1 = single (never married), Mar3 = divorced, Mar4 = other, Mar 1,3,4 are zeros = married, YLev = years at current level, YIns = years at present institution, CLev = current level, GSup = gender of supervisor, Move = willingness to move, CCom = campus committees/taskforces, ECom = external committees/taskforces, Appl = applications for upper level positions in the last five years, Term = terminal degree activity (have a doctorate or working on one), Lead = participation in a leadership institute of more than one day in duration, St = state (1 for California, 0 for North Carolina)
* Indicate significant p-values.

presented in Table 21, **model 5**. The final model, **model 5**, consisted of age, educational level, state, years at level, years at the institution, current level, willingness to move, campus committees, external committees, applications for upper level positions in the last five years, terminal degree activity (earned a doctorate or working on one), participation in a leadership institute, and two interaction terms, state times applications (appl*st) and age times age (age * age). The only difference between the two groups of women was the odds of desiring to advance for each application for an upper level position.

## Table 21: Final Logistic Regression Results (N=641)

| Parameter | Parameter Estimate $\beta$ | Odds Ratio $e^{\beta}$ | Standard Error | DF | $-2\,Log_e L$ Deviance | Chi-Square |
|---|---|---|---|---|---|---|
| Intercept | | | 3.0230 | | 804.9677 | |
| Age | 0.1972 | | 0.1264 | 1 | 788.4524 | 16.52<br><0.0001* |
| Edu | 0.0650 | 1.067 | 0.1901 | 1 | 753.2980 | 35.15<br><0.0001* |
| St | 0.4801 | 1.616 | 0.3030 | 1 | 745.6649 | 7.63<br>.0057* |
| YLev | -0.0168 | 0.983 | 0.0217 | 1 | 739.8872 | 5.78<br>0.0162* |
| YIns | -0.0150 | 0.9851 | 0.0149 | 1 | 734.3857 | 5.50<br>0.0190* |
| CLev | -0.0918 | 0.9122 | 0.1018 | 1 | 728.7236 | 5.66<br>0.0173* |
| Move | 0.3025 | 1.353 | 0.0954 | 1 | 710.6435 | 18.08<br><0.0001* |
| CCom | 0.0696 | 1.07 | 0.0642 | 1 | 705.4868 | 5.16<br>0.0232* |
| ECom | 0.1180 | 1.125 | 0.0602 | 1 | 696.7278 | 8.76<br>0.0031* |
| Appl | 0.7382 | | 0.1827 | 1 | 681.2244 | 15.50<br><0.0001* |
| Term | 0.8308 | 2.295 | 0.2891 | 1 | 668.6098 | 12.61<br>0.0004* |
| Lead | 0.6752 | 1.96 | 0.2254 | 1 | 659.3670 | 9.24<br>0.0024* |
| Appl*St | -0.6612 | | 0.1906 | 1 | 645.4516 | 13.92<br>0.0002* |
| Age*Age | -0.0026 | | 0.0013 | 1 | 641.2751 | 4.18<br>0.0410* |
| **Model 5 Fit:** | $-2\,Log_e(\mathit{Intercept\ only})-\left[-2\,Log_e(\mathit{All\ Independent\ Variables})\right]$<br>804.9677 – 641.2751 = 163.6926 with 14 DF | | | | | <0.0001* |

Note. Edu = educational level, YLev = years at current level, YIns = years at present institution, CLev = current level, Move = willingness to move, CCom = campus committees/taskforces, ECom = external committees/taskforces, Appl = applications for upper level positions in the last five years, Term = terminal degree activity (have a doctorate or working on one), Lead = participation in a leadership institute of more than one day in duration, St = state (1 for California, 0 for North Carolina)

* Indicate significant p-values.

All odds are presented below:

- the odds increased 6% for each additional degree
- the odds of desiring to advance for women in California were 1.6 times the odds of women in North Carolina
- the odds decreased 1.7% for each year at an administrative level
- the odds decreased 1.49% for each year at the institution
- the odds decreased 8.78% for each increase in administrative level
- the odds increased 35% for each level of willingness to move
- the odds increased 7% for each additional campus committee or taskforce
- the odds increased 12.5% for each additional external committee or taskforce
- the odds of desiring to advance for women who had earned a doctorate or were working on one were 2.29 times the odds of women who had not earned a doctorate nor was working on one
- the odds of desiring to advance for women who had participated in a leadership institute were 1.96 times the odds of women who had not participated in a leadership institute

The odds of desiring to advance for age depended on **age** and **age times age**. In other words, the desire to advance was not constant but depended on the age of the woman. At age 25, the odds of desiring to advance increased 6.67% for each year increase in age, (see Appendix N) at age 37 the odds were the same for each year increase in age. After this age, 37.5, the odds of desiring to advance decreased for each year increase in age. In addition, the odds for **number of applications for upper level positions in the last five years (appl)** depended on **applications** and **applications times state** (see Appendix N). In California and North Carolina, respectively, the odds of desiring to advance were 1.08 and 2.09. For each additional application for an upper level position, the odds of desiring to advance increased 8% in California and 109% in North Carolina. Before ending this section, the final logistic regression equation will be presented along with examples of how the equation can be used to compute odds for the women administrators.

$$\log_e\left(\frac{\pi}{1-\pi}\right) = \log_e(odds) = \ln(odds) =$$

$$age(0.1946 - 0.0052age) + 0.0650edu + 0.4801st - 0.0168ylev - 0.0150yins - 0.0918clev +$$

$$0.3025move + 0.0696ccom + 0.1180ecom + appl(0.7382 - 0.6612st) + 0.8308term + 0.6752lead$$

**Example 1:**

The odds of desiring to advance for a 45 year old California dean with a Master's degree who has been at her level for seven years and at the institution for nine years, not willing to move, served on three campus committees and two external committees, applied for no upper level position, working on a doctorate, and participated in a leadership institute would be computed in the following manner:

Age = 45

Educational Level = 3 (Master's)

St = 1 (California =1 and 0 = North Carolina)

YLevel = 7

YIns = 9

CLev = 3 (Dean)

Move = 1 (Not willing to move)

CCom = 3 (Campus Committees)

ECom = 2 (External Committees)

Appl = 0 (Number of Applications)

Term = 1 (Terminal Degree Activity is Yes)

Lead = 1 (Leadership Participation is Yes)

$$\log_e(odds) =$$

$$45(0.1946 - 0.0052 * 45) + 0.0650 * 3 + 0.4801 * 1 - 0.0168 * 7 - 0.0150 * 9 - 0.0918 * 3 +$$

$$0.3025 * 1 + 0.0696 * 3 + 0.1180 * 2 + 0(0.7382 - 0.6612 * 1) + 0.8308 * 1 + 0.6752 * 1$$

The right side becomes 0.6274 and the equation is now: $\log_e(odds) =$ 0.6274. Using the properties of logarithms, the equation is now: $odds = e^{0.6274} = 1.87$ which means the odds of desiring to advance for this administrator are 1.87. The **probability** of advancing is $\left(\frac{odds}{odds+1}\right)$, so the **probability** of advancing for this administrator is $\left(\frac{1.87}{1.87+1}\right) = 0.65$.

**Example 2:** Use the same example for North Carolina and change the value for state to zero (0).

$$\log_e(odds) =$$

$$45(0.1946 - 0.0052 * 45) + 0.0650 * 3 + 0.4801 * 0 - 0.0168 * 7 - 0.0150 * 9 - 0.0918 * 3 +$$

$$0.3025 * 1 + 0.0696 * 3 + 0.1180 * 2 + 0(0.7382 - 0.6612 * 0) + 0.8308 * 1 + 0.6752 * 1$$

The right side becomes 0.1473 and the equation is now: $\log_e(odds) = 0.1473$. Using the properties of logarithms, the equation computes to $odds = e^{0.1473} = 1.16$, which means the odds of desiring to advance for this administrator are 1.16. The **probability** of advancing is $\left(\frac{odds}{odds+1}\right)$, so the **probability** of advancing for this administrator is

$\left(\frac{1.16}{1.16+1}\right)=0.54$.

This ends the presentation of findings, now a summary of the descriptive statistics and logistic regression analyses will be presented.

**Summary**

Six hundred forty-three women returned surveys in this study--189 from California and 454 from North Carolina. The average age of the women administrators in California was 52.8 years, 48.2 years in North Carolina, and 49.6 years overall. Eighty-nine and seven-tenths percent (89.7 %) of the women administrators in North Carolina were Caucasians compared to 78.3% in California and 86.3% overall. In California, minority women existed as administrators as well: 7.9% African Americans, 6.4% Hispanics, 3.2% Asians, and 1.1% Filipinos, but only two minority group of administrators existed with more than 1% in North Carolina, African Americans (7.9%) and Native Americans (1.1%).

At least 60% of the women were married--73% in North Carolina and 60% in California. The single (never married), divorced, and widowed categories comprised 26.9% of the sample in North Carolina and 40% in California. Most of the women had earned a Master's degree--59.3% in California and 69.8% in North Carolina; California registered a higher percentage of doctorates at 38.6% compared to North Carolina's 10.4%. Overall, 66.7% had earned a Master's degree and 18.7% a doctorate. The women did not have the responsibility of children: 98.9% of the women in California and 95% of the women in North Carolina had no children 0 to 5 years of age; 86.2% of the women in California and 75.8% of the women in North Carolina had no children 6 to 11 years of age; and 86.24% of the women in California and 75.8% of the women in North Carolina had no children 12 to 17 years of age. Overall, 96.1% had no children 0 to 5 years of age; 87.5% had no children 6 to 11 years of age; and 78.8% had no children 12 to 17 years of age. In addition to not having children, women in both states were not presently caregivers, 81% in California and 79% in North Carolina; nor had they been in the past five years, both 71%. Overall, 79.6% were not caregivers at the time of the study nor had 76.7% been in the past five years.

The gender of the supervisors of the women in both states was divided about equally: 51.85% male and 48.15% female in California compared to 52.25% male and 47.8% female in North Carolina. More ethnic supervisors existed in California than in North Carolina: 68% Caucasian, 11.64% African American, 9% Asian, 7.94% Hispanics, and 3.17% Native Americans in California in comparison to 89% Caucasian in North Carolina, 7.49% African Americans, 1.1% Asians, .44% Hispanics, and 1.54% Native Americans and no Filipino supervisor. Overall, 83% of the supervisors were Caucasian, 8.7% African American, 3.4% Asian, 2.6% Hispanic, and 2% Native American.

The mean number of years of administrative experience in California was 13.7 years, 11.7 years in North Carolina, and 12 years overall. The typical woman administrator in North Carolina was a department chair, lead instructor, program coordinator, or satellite or off-campus coordinator, while the typical California woman administrator was a division dean. The female administrator had served at her current administrative level an average of five and five-tenths years (5.5) in California, seven and four-tenths years (7.4) in North Carolina, and six and eight-tenths years (6.8) overall. Both groups of women had worked at their present institution about 12.5 years, and they had been in higher education an average of 20.8 years in California, 15.6 years in North Carolina, and 17 years overall.

Forty-seven and six-tenths percent (47.6 %) of the women in California, 19.8% of the women in North Carolina, and 28% overall possessed a doctorate or were working on one. The women would move limited miles in the state for advancement: 63% in California, 65.9% in North Carolina, and 65% overall. Also, the women were active in campus committees/taskforces, and five was the average number of committees/taskforces served on by the women in California, three (3) in North Carolina, and a little less than four (4) overall. Moreover, the mean number of external committees/taskforces served on in California was three (3), two (2) in North Carolina, and two and four-tenths (2.4) overall. Eighty-one percent (81%) of the women in California had participated in a leadership institute compared to 54% in North Carolina and 62% overall. A majority of the women did not have a mentor/sponsor: 55% overall, 54% in California, and 55% in North Carolina. Eighty-eight and five-tenths percent (88.5%) of the women in California had applied for three or less upper level positions while 92.8% of the women in North Carolina had applied for one.

In tracking the career paths of the women administrators, most of the women in North Carolina advanced from the faculty level, or a noninstructional job, or entered the community college from some other occupation seven years in the past and became department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators which was not the case in California. The women in California left the department chair, lead instructor, program coordinator, or satellite or off- campus positions and became division deans. Although the survey did not ask for their path beyond seven years, the most likely path traveled by both groups of women to their present position was from another community college, or a four-year institution, or a public school, in that order. The five year goals of the women were: 40.7% (n = 77) of the women in California desired to advance, 28.6% (n = 130) in North Carolina, and 32.2% (n = 207) overall. Positions desired by the women in California were: 9% desired to be a division dean, 14.3% desired to be an associate vice president, 36.4% desired to be a chief instructional officer, and 26% desired to be a president; in contrast, in North Carolina, 4% hoped to be a department chair, lead instructor, program coordinator, or satellite or off- campus coordinator, 14% wanted to be an associate or assistant dean, 41.5% aspired to be a division dean, 10.7% wished to be an associate or assistant vice president, 13.1% envisioned being a chief instructional officer, and 9% desired to be a president. Overall, 29.5% had goals of becoming a division dean, 21.7% a chief instructional officer, and 15.4% a president.

Logistic regression analyses of career paths indicated **no differences** existed between the women when compared using the personal variables and the situational variables. Likewise, no differences were found between the women with the advancement variables except for number of applications. Although the women in

California applied for more upper level positions, for each additional application the odds of desiring to advance increased 8% in contrast to the odds in North Carolina, which increased 109% for each additional application. The mean number of applications in California for those who did not desire to advance was 1.2 with a standard deviation of 3.05 in contrast to a mean of 2.84 and a standard deviation of 3.78 for those who desired to advance. In North Carolina, the mean number of applications for those who did not desire to advance was 0.2 with a standard deviation of 0.48 which differed greatly from those who desired to advance whose mean and standard deviation were 1 and 2.13, respectively. This difference in mean and standard deviation suggested that women in California applied for jobs when they were not really seeking to advance; whereas, women in North Carolina were seriously seeking a job when they applied.

The model to best describe career paths of women administrators in the North Carolina and California Community College Systems consisted of age; educational level; state; years at the institution; years at current level; current administrative level; willingness to move; number of campus committees; number of external committees; number of applications for upper level positions in the last five years; terminal degree activity; participation in a leadership institute; and two interaction terms, applications times state and age times age. The odds of desiring to advance for the final model are presented below:

- the odds increased 6% for each additional degree
- the odds of desiring to advance for women in California were 1.6 times the odds of the women in North Carolina
- the odds decreased 1.7% for each year at an administrative level

- the odds decreased 1.49% for each year at the institution
- the odds decreased 8.78% for each increase in administrative level
- the odds increased 35% for each level of willingness to move
- the odds increased 7% for each additional campus committee/taskforce
- the odds increased 12.5% for each additional external committee/taskforce
- the odds for women who had earned a doctorate or were working on one were 2.29 times the odds of women who were not engaged in these activities
- the odds for women who had participated in a leadership institute were 1.96 times the odds of women who had not participated in a leadership institute

The odds of desiring to advance for age depended on age and age times age. At age 25, the odds of desiring to advance increased 6.67% for each year increase in age, remained the same at age 37, and started to decrease at age 37.5. Further, for applications, the odds of advancement for number of applications depended on the state. Although the women in California applied for more upper level positions than the women in North Carolina, the odds of desiring to advance increased 8% in California and 109% in North Carolina for each additional application. This suggested that the women in California routinely applied for upper level positions without seeking to advance, which was opposite of the intent in North Carolina.

Overall, career paths of the women were explained by two personal variables, age and educational level; three of the situational variables, years at level, years at the institution, and current administrative level; six of the advancement variables, willingness to move, number of campus committees/taskforces, number of external committees/taskforces, number of upper level positions applied for in the last five years, terminal degree activity (possess a doctorate or working on one), and participation in a leadership institute; and two interaction terms, age times age, and applications times state. Moreover, the state variable was significant which accentuated differences in the state.

# CHAPTER 5

## SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The personnel in community colleges across the country is aging and will be retiring in a few years, forcing administrative officials to address who the new leaders will be in their institutions. Women represent a large pool of talent from which to choose, but questions persist about their interest and their preparation for moving into these new leadership positions. One factor to remember in answering these questions is that even in 1999 women still bear the twin responsibilities of the children and the home although many receive support in these areas from their spouses, if married, as well as other support networks. Have circumstances changed for women that will allow them to pursue career goals comparable to men? This researcher mailed 762 surveys to instructional administrators in the North Carolina and California Community College Systems in July 1998 to ascertain their career paths and variables influencing their career paths. The final number of respondents in the study was 643, 189 from California and 454 from North Carolina, which resulted in an overall response rate of 87%.

The researcher designed the survey which consisted of an eight page booklet of 28 questions organized into four parts. Logistic regression analysis was the regression analysis used to analyze the data, and SAS' PROC GENMOD, along with WINKS from Texasoft, generated the statistical analyses and descriptive statistics. Specific research questions for the study were:

**Research Question 1:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to personal variables {age, ethnicity, marital status, number of younger children (0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age), elderly caregiver status presently, elderly caregiver status in the past five years, and educational level} and career path?**

**Research Question 2:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to situational variables {gender of immediate supervisor, number of years of administrative experience, number of years at current administrative level, number of years at present institution, total number of years in higher education, ethnicity of supervisor, and current job level} and career path?**

**Research Question 3:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to advancement variables {terminal degree activity, willingness to move, number of campus committees/taskforces on which they served, number of external committees/taskforces on which they served, number of upper level positions applied for in the last five years, participation in a leadership institute of more than one day, and sponsor/mentor relationship} and career path?**

This chapter offers conclusions and implications from the data, compares and contrasts the findings with the research, suggests recommendations in general and for future research, and concludes with answers to the propositions hypothesized in Chapter Two. Each research question serves as a guide for the conclusions and implications.

**Research Question 1:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to personal variables {age,**

**ethnicity, marital status, number of younger children (0 to 5 years of age, 6 to 11 years of age, and 12 to 17 years of age), elderly caregiver status presently, elderly caregiver status in the past five years, and educational level} and career path?**

An important point in understanding the data from this study is to recognize that the sample consisted predominantly of Caucasian women, therefore, the percentages given are actually the percentages for Caucasian women from both states with a variation of plus or minus five tenths percent (.5%) to plus or minus two percent (2%). The data showed that women in California were four (4) years older than the women in North Carolina, 52.8 and 48.2 years, respectively, this statistic was true for every ethnic group in California. Also, California had a more diverse cadre of administrators than North Carolina, with African Americans comprising 7.9% in both states. California, however, was also represented by Hispanics (6.4%), Asians (3.2%), Filipinos (1.1%), and other ethnic groups (2.6%).

In addition to age and ethnicity, the states also had comparable percentages when the number of children were viewed in the 0 to 5 years of age category: 99% for California and 95% for North Carolina, no children in that age group. However, California women had fewer children in the other two age groups: 92.6% of the women in California had no children in the 6 to 11 years group compared to 85% in North Carolina, and 86% of the women in California reported no children in the 12 to 17 years group compared to 75% in North Carolina. Although marital status was not significant in influencing career paths, North Carolina reported a higher percentage of women married than California, 75% in North Carolina compared to 63% in California.

In addition, the women were not caregivers at the time with 81% of the women in California and 79% of the women in North Carolina answering "no" to being a caregiver presently, and 71% of both groups had not been caregivers in the past five years. The greatest difference between the women in this category of personal variables was the educational level of the women. The mean educational level of women in California was 3.4 on a scale of 1 to 5 with 1 representing an Associate's Degree, 2 representing a Bachelor's Degree, 3 representing a Master's, 4 representing a Doctorate, and 5 representing a Professional Degree (D.D.S., M.D., J.D.) compared to North Carolina's mean of 2.9.

Further, final logistic regression analysis of the significant personal variables indicated **no differences** between the two states in the odds of desiring to advance. In general, age was negatively related to the odds of desiring to advance which was supported by the low percentage of women in the sample who desired to advance, 32.2%. For age, the odds of desiring to advance depended on the age of the woman at the time. At age 25, the odds of desiring to advance increased 6.67% for each year increase in age, and after 37.5 years of age, the odds of desiring to advance decreased.

Additionally, educational level was significant and the odds of desiring to advance increased 6% for each degree. Cross tabulations highlighted that the mean educational level of women who desired to advance was higher than the mean of women who did not desire to advance. Specifically, the mean educational level in California was 3.5 for those desiring to advance compared to 3.34 for those who did not, and in North

Carolina the mean educational level was 3.15 for women who desired to advance compared to 2.85 for those who did not.

Moreover, marital status, often cited in the research as impeding career advancement, was not significant in the present study as it was in Warner and DeFleur's (1993) research which revealed that many of the women had never married or were divorced. In the present study, 69% of the women were married, and all of the marital statuses were somewhat similar on the desire to advance. Also, cross tabulations of the number of children under 18, which was not significant in the present study, revealed that 70.5% of the women reported no children, 14% one child, 12% two children, 2.6% three children, 0.3% four children, and 0.2% five children.

In addition, the women in this study were older than the women in the research by Moore, Twombly, and Martorana (1985) in which the mean age was 46.4 years. No comparison could be made with the women administrators in Capozzoli's (1988) research because an exact age was not given, only that the women were in their forties. Added, the data from the present study were buttressed by the research of Jaskolka, Beyer, and Trice (1985), and Julian (1993) who found a significant relationship between educational level and career achievement. Finally, eldercare was not significant as well as ethnicity, which confirmed the AT&T Assessment Center's findings that race differences are negligible for upward moving black executives.

**Conclusion 1**: Age influenced the desire to advance negatively, as age increased the desire to advance decreased; in contrast, the educational level influenced the desire to advance positively, as educational level increased the desire to advance increased.

**Research Question 2:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to situational variables {gender of immediate supervisor, number of years of administrative experience, number of years at current administrative level, number of years at present institution, total number of years in higher education, ethnicity of supervisor, and current job level} and career path?**

The women in both states were very similar when compared with the situational variables. The mean number of years at the institution for both groups was 12. 8 years for North Carolina and 12.6 years for California, and the mean number of years of administrative experience was 13.7 years for California and 11.7 years for North Carolina. In addition, the gender of supervisor for both groups was evenly divided between male and female. Differences, however, existed in their current administrative level, number of years in higher education, and number of years at their current administrative level.

All of the women in North Carolina, except the two Hispanic administrators, had a mean administrative level of 1.6 compared to the women in California who had a mean administrative level of 3.2. Also, the mean number of years in higher education in California was 20 years, compared to North Carolina's 15.6 years which was even higher when ethnic groups were considered individually. Additionally, the women in North Carolina had served at their administrative level seven and four-tenths (7.4) years compared to five and five-tenths (5.5) years in California.

Further, more ethnic supervisors were represented in the California sample than in the North Carolina sample as evidenced by the fact that 11.64% of the supervisors in

California were African Americans compared to 7.49% in North Carolina; 9% Asians in California compared to 1.1% in North Carolina; 7.94% Hispanics in California compared to .44% in North Carolina; and 3.17% Native Americans in California compared to 1.54% in North Carolina.

Results from logistic regression disclosed **no differences** between the states in the odds of desiring to advance with the situational variables. For both states, years at current level, years at the institution, and current administrative level were significant variables in determining the odds of desiring to advance. The odds of desiring to advance decreased 1.49% for each year at the institution. In North Carolina, the mean number of years at the institution for women who did not want to advance was 13.56 years compared to 11 years for those who did; in California, the mean number of years for women who did not want to advance was 14.96 years compared to 9.3 years for those who did want to advance.

Each year at the same administrative level decreased the odds of desiring to advance by 1.7%, and the mean number of years at the current level for women in North Carolina who desired to advance was 5.9 years compared to 8 years for women who did not want to advance. In California, the mean number of years at the current level for women who desired to advance was 4.83 years compared to 6.12 years for women who did not. For each increase in administrative level, the odds of desiring to advance decreased 8.78%. In both states, the mean administrative level for those desiring to advance compared to those not desiring to advance was almost the same. North Carolina's mean administrative level for those desiring to advance was 1.91 compared to

1.53 for those not desiring to advance; likewise, California's mean administrative level for those desiring to advance and not desiring to advance was 3.31 and 3.26, respectively.

In examining administrative level, the North Carolina data highlighted a large talent pool of administrators serving at level one. Seventy-two percent of the women in North Carolina were either department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators. Stewart and Gudykunst (1982), Blau and Ferber (as cited in Olson & Frieze, 1987), Moore (1982a), Konrad and Pfeffer (as cited in LeBlanc, 1993), Jones' (1993) higher education study, and Durnovo's (1988) community college study also found women administrators in low levels of organizations. Data from the present study suggest an endemic problem in North Carolina Community Colleges with women typically occupying low levels in the hierarchy.

For example, several studies that were conducted years apart repeat the same findings of women occupying low levels in the North Carolina System, beginning with Gardner in 1977, and the North Carolina System of Community Colleges in 1980. Jones (1983) also concluded in her research that women occupied the low administrative levels in the system. Deese and McKay in 1991 authored the report, "*The Dawning of a New Century: North Carolina Community College System Comprehensive Plan for Administrative Leadership through Diversity Enhancement*", which offered suggestions, recommendations, and time lines for increasing the number of women and minorities in senior leadership positions. Likewise, Gillett-Karam, Smith, and Simpson in 1997 cited the low status of women in their research on the North Carolina Community College

System. Data from these studies along with the present study suggest that the North Carolina Community College System is not a career system for women.

Becker and Strauss (1956) hypothesized that a career is the flow of people through the organization, and Sagaria (1988) proffers that careers are the cumulative effect of position changes through which there is an increase in salary, status, and authority. Career systems develop and move members upward (promotion), and this movement is characterized by more responsibility, rewards, and prestige. The women administrators in the North Carolina Community College System do no more than work at the community colleges, which is evidenced by the women's inability to advance very far up the hierarchy. In a telephone conversation with an administrator in North Carolina, she stated that she had given up her position and returned to teaching because of the tremendous amount of work given to her without adequate compensation. She further stated that in general, women were given more responsibilities and duties than men, but without the pay.

Another respondent wrote on her survey (the survey did not ask for comments, this respondent wrote comments voluntarily) that "women in the North Carolina Community College System are expected to do more for less than are men; they are also held to a much higher standard." If the department chairs and lead instructors were not counted, the associate or assistant deans in North Carolina would be 12% compared to 8.46% in California, division deans in North Carolina would be 65% compared to 59.26% in California, associate or assistant vice presidents would be 4% in North Carolina and 8.47% in California, chief instructional officers would be 12.9% in North

Carolina compared to 14.29% in California, and executive vice presidents, associate or assistant chancellors would be 5.6% in North Carolina compared to 3.7% in California. Position titles vary from school to school in North Carolina as well as the responsibilities, so true comparisons of levels are complicated between the states. The fact remains that a large cadre of women are department chairs, lead instructors, program coordinators, or satellite or off-campus coordinators in North Carolina.

With their credentials of experience and education, the women in North Carolina should have progressed further up the administrative hierarchy than what their current level indicates. A doctorate is not necessary for 99% of the positions and is only necessary for becoming president. A telling example of talent not being used to the fullest is one North Carolina respondent who was the general manager of a multimillion dollar manufacturing plant before joining the community college system. Perceived inequities were not only in North Carolina, but they also existed in the California sample. One respondent wrote,

> "I am a nurse and feel others have a negative reaction of a nurse (woman) in a leadership role in an educational setting though I have the same education through a Master's degree. I feel I would need a Ph.D. and have to stand on my head to advance. Honestly, the glass ceiling is thicker than ever!!!... I feel discouraged or fatalistic about the whole process. If you think it is bad for women in education, try nursing. I have been an RN since age 19-an honor student and high achiever. It is never enough. I give up? I am pursuing things that give me joy!!"

Another example of talent not being used was the status of African American women in the North Carolina System. On every statistical data variable such as education, years at the institution, years in higher education, and administrative experience, African American women had higher averages than Caucasian women, yet the highest administrative level obtained in the sample was that of dean. Moreover, two-thirds of the African American women were department chairs, and none were chief instructional officers or vice presidents of instruction, or executive vice presidents. The lack of diverse administrators in the North Carolina System suggested an issue of the "right fit" in hiring for the system.

Some research identifies career development as a function of socialization: fit, homogeneity, and ideologies of gatekeepers. In a community, it is up to the group members to decide who can enter and usually those who are allowed to enter possess the same norms, likeness, and attitudes as the gatekeepers (Epstein, 1970, 1974; Goode, 1957). Sagaria and Dickens (1990) suggest that to reduce ambiguity and uncertainty in high level positions, employers rely upon known qualities such as social commonalities or mutual experiences. Echoing Sagaria and Dickens, Roos and Reskin (1984) posit that managers try to reduce ambiguity by hiring people who resemble themselves socially or share reciprocal backgrounds and experiences. Because white males occupy most upper level positions, women, whose experiences are different in general, and women of color who differ socially as well, are at a disadvantage in securing upper level positions (Roos & Reskin, 1984). Josefowitz (1980) further states that given a choice between equal credentials and "organizational fit" that employers will choose the person who fits in with the organization with sex and race which is typically, neither a woman nor a minority. Likewise, organizational theorist, Chester Barnard believed that executive personnel should fit with the executive of the organization. As an example, in the current study, the executive vice presidents, who are a part of the president's team, in North Carolina had been employed at the institution a mean of 19.9 years compared to 8.6 years in California.

In contrast to North Carolina, all women, including minority women, in California were located in high administrative positions. In 1982, California began to see a change in the status of women administrators in the top three level positions (chancellors, presidents, superintendents; vice chancellors, vice presidents, full deans; and deans, associate, and assistant deans) as their numbers increased from 26 in 1972, to 97 in 1982, and to 315 in 1992. Also worth mentioning is that in 1988, the California Legislature passed Assembly Bill 1725 (Sheehan, 1995) which set specific goals for achieving gender and ethnic diversity in staffing in California's Community Colleges, and yearly the goals are reviewed with the publishing of accountability reports.

Finally, gender of supervisor was not significant; however, gender of supervisor was significant until the last model, model 5. The odds of desiring to advance were higher for women with male supervisors than for women with female supervisors. The women in Holliday's (1992) research noted the importance of supervisors in professional development, and candidly stated that the presence of women in higher administrative levels did not necessarily help career development.

**Conclusion 2:** Years at current administrative level, years at the institution, and current administrative level reduced the odds of desiring to advance.

**Conclusion 3:** Women supervisors were not an advantage to the careers of women administrators in both systems.

**Implication 1**: Differences existed in opportunities for women in the California Community College System compared to the North Carolina Community College System. These differences were manifested by the high administrative levels of the women in the California system, and the low levels in the North Carolina system.

**Implication 2**: At their rate of movement, women in North Carolina will be 55 years old before their next promotion, and many of them will not have reached the dean's level.

**Implication 3**: The North Carolina Community System was not maximizing the use of its human resources and talent at the time of the present study.

**Implication 4:** Very few people of color, men or women, were instructional administrators in the North Carolina System. Moreover, only one Hispanic female and no African American female served as a chief instructional officer or vice president. Who will be the role models for students of color, and future women of color administrators? Who will be the voice for students, faculty, and staff of color in the North Carolina Community College System?

**Research Question3:**

**What are the differences between women administrators in the North Carolina and California Community College Systems as related to advancement variables {terminal degree activity, willingness to move, number of campus committees/taskforces that serve on, number of external committees/taskforces that serve on, number of upper level positions applied for in the last five years, participation in a leadership institute of more than one day in duration, and sponsor/mentor relationship} and career path?**

No significant differences existed between the women in California and North Carolina with respect to advancement variables, except for the number of applications. Although the women in California applied for more upper level positions, the odds of desiring to advance increased 8% in California and 109% in North Carolina for each additional application. This suggested that women in California applied for upper level positions without seeking to advance, which was not the case in North Carolina. Along with the number of applications for upper level positions, five other advancement variables were significant. The odds of desiring to advance increased 35% for each level of willingness to move. Data from the present study mirror other research on relocation for women. For example, Markham's (1987) study show that a relationship exists between gender and willingness to relocate, and Bell's (1992) study of Ph.D. recipients, a large portion of them women, were unwilling to move at all for advancement. Additionally, Julian's (1992) study of community college women administrators found that more than 67% of the women had never relocated for a promotion, and that only 35% were willing to relocate. Similarly, over 50% of the women in Gillett-Karam, Smith, and Simpson's (1997) study agreed that their unwillingness to relocate hindered their advancement. The current study determined that women were willing to move limited miles within the state, with 65.9% of the women in North Carolina willing to move limited miles within the state compared to 63% of the women in California.

Two other significant variables were serving on campus and external committees/taskforces, which increased **the odds of desiring to advance 7% and 12.5%, respectively, for each additional committee/taskforce**. External committees/taskforces create networks and according to Ragins and Sundstrom (1989), and Moore, Twombly, and Martorana (1985) are very important. The women in Hubbard's (1993) study used professional organizations to help with networking; Patz's (1989) study of women in California revealed a positive relationship between networking and high administrative levels and frequency of promotions. The women in Holliday's (1992) study of women in California stated that organizations helped them to grow, to take risks, and to develop networks. They also volunteered for committee assignments and projects. In the current study, 60% of the women in North Carolina served on three or fewer campus committees/taskforces, 66% served on two or fewer external committees/taskforces and 34% served on three or more. In California, 83.6% of the women served on four or more campus committees/taskforces, 41.9% served on two or fewer external committees/taskforces and 58.1% served on three or more.

Next, this study determined that the odds of desiring to advance for women engaged in terminal degree activity (earned a doctorate or working on a doctorate) **were 2.29 times** the odds of women who were not engaged in terminal degree activity. For both states, about seven percent of the women were pursuing a doctorate, but California had a higher percentage of women who possessed the doctorate (38.6% compared to 10.4%). Winship and Amey (1992) categorize obtaining the doctorate as a formal career development variable. Only nine percent (9%) of the women in Jones' (1983) North Carolina Community College study held the doctorate, and sixteen years later, in the present study on instructional administrators, only 10.4% of the women in North Carolina possessed the doctorate. Also, Gillett-Karam et al. (1997) found that men in North Carolina Community Colleges were three times as likely as women to have the doctorate. Two women administrators from North Carolina indicated that they would begin a doctoral program soon, and one was considering working on a doctorate.

The final significant advancement variable was the participation in a leadership institute. The odds of desiring to advance for women who had participated in a leadership institute were **1.96 times the odds** of women who had not participated in one.

Eighty-one percent of the women in California had participated in a leadership institute of more than one day in duration, and 54% of the women in North Carolina, a statistic true across all ethnic groups. The North Carolina percentage should not have been as low because a leadership institute for women and minorities, although men attend as well, exists in the state. The research literature states that leadership institutes can also serve as networking structures. Scandura (1992) found a positive relationship between training and promotion, and Faulconer's (1993) study of California women revealed that training was necessary for advancement. The data from the current study strongly suggested that individuals desiring to advance need to obtain the doctorate, be willing to move, should serve on campus and external committees/taskforces, attend leadership institutes, and apply for upper level positions.

**Conclusion 4**: Individuals interested in advancing should consider obtaining the doctorate, becoming visible by serving on campus and external committees/taskforces, relocating, participating in leadership institutes, and applying for upper level positions.

**Conclusion 5**: Women were still not willing to move for advancement.

**Implication 5:** The model that asks people to move for advancement should be re-examined. Are people being asked to give up too much for advancement?

**Implication 6**: The data suggested that women in California were more actively engaged in advancement strategies than the women in North Carolina.

**Implication 7**: Investment in a doctorate was more advantageous to the women in California than the women in North Carolina.

The state variable, which was neither a personal, situational, or advancement variable, was significant in every model. The odds of desiring to advance for women in California were 60 times the odds of the women in North Carolina in model 1; 38.83 times in model 2; 10.2 times in model 3; 10.9 times in model 4; and in the final model, model 5, 1.6 times. A significant state variable indicated that differences existed in the states, and women in California had higher odds of desiring to advance than women in North Carolina.

**Conclusion 6:** The odds of desiring to advance for women in California were higher than the odds of women in North Carolina.

After considering the variables that influence the desire to advance higher in the organization, an appropriate next step is to frame the administrative levels that the women hope to attain in the context of where they have been. Most of the women in the North Carolina Community College System were faculty and department chairs seven years ago, and even three years ago. In the present study, most of the women from North Carolina were department chairs, and 28.6% of the North Carolina sample desired higher advancement to the position of division dean (41.5%), associate or assistant vice president for instruction (10.7%), chief instructional officer (13.1%), and president (9%). Parallel to this, most of the women in California were division deans and higher, and 40.7% of the California sample desired to advance higher, primarily to the positions of: associate or assistant vice president for instruction (14.3%), chief instructional officer (36.4%), and president (26%). This presidential percentage mirrors their twenty five percent (25%) share of all female community college presidents (Vaughan & Weisman, 1997b).

In closing, advancement does not occur by chance, but by skillful planning and analysis. This model for odds of advancement consist of two personal variables, age and educational level; three situational variables, years at level, years at the institution, and current level; and six advancement variables, willingness to move, campus committees/taskforces, external committees/taskforces, terminal degree activity, number of applications for upper level positions, and participation in a leadership institute of more than one day in duration. Of all of these variables, women have control over eight of them: educational level, years at the institution, willingness to move, campus committees/taskforces, external committees/taskforces, terminal degree activity, applications for upper level positions, and participation in a leadership institute. They can also better use age to their advantage. The organization is only responsible for fair wages and a hospitable environment; advancement is an individual choice and requires individual action. **Knowledge, action, and analysis of the environment** are key to helping women to achieve the goals set for themselves, to learn how not to depend on the organization, and to increase their own opportunities for advancement in the organization. Suggested recommendations for policy makers, leadership institute coordinators, and women administrators, as well as recommendations for further research will now be discussed.

**Recommendations**:

**One**, the North Carolina Community College System is a nationally known system, and one of the three largest community college systems in the country. Women's movement in the system is incompatible with the reputation and image that the system has of itself. Thus, the president of the system, the State Board of Community Colleges, and the State Legislature, should take affirmative steps, and not study anymore, to bring parity to **all** women's credentials, abilities, and levels in the organization in order to attract the best, the brightest, and to use all of the human resources, not just a select group.

Studies highlight that men and women differ very little in their leadership styles, and the new leadership style, transformational leadership which has been identified as feminine and transformational, is believed by many to be the style needed for leaders to manage organizations in the future. In addition, more than ever before, the community college is the port of entry to higher education for the economically disadvantaged, women, and minorities; thus, the administrative hierarchy needs to be more reflective of its clientele. This researcher does not suggest nor believe that an individual should be hired because of gender or ethnicity; however, qualified women and minority candidates do exist in the service areas of the community colleges in North Carolina, have applied for positions, and should be hired.

Moreover, the data in this study revealed that the odds of desiring to advance for women in California were 1.6 times the odds of women in North Carolina. Either the women in California were more motivated, or the women in North Carolina had adjusted their career goals for the reality of the job environment. If the latter was the case, North Carolina's women adjustment corresponds to Douglas McGregor's theory that management shapes the behaviors of workers in organizations (Vasu, Stewart, & Garson, 1990). On the other hand, the women in California community colleges were the first to write a dissertation on women in community colleges as well as other articles, and several of the ethnic women in California have written dissertations, articles, and chapters in books, too. Thus, advancement responsibility in North Carolina should be shared between the North Carolina Community College System and the women administrators. **Two**, women administrators should consider commuting as well as limiting the number of years that they remain at an institution.

**Three**, leadership institutes should help women to better read their environments and bosses. According to Hennig and Jardim (1977, p. 50), fundamental to men is "what does this boss want, because the chances are he can make or break me for the next job." Amey (1990) believes that the supervisor determines the manager's exposure in the organization and Harrow (1993) believes that the supervisor shapes career outcomes. In Drucker's (1977) article "*How to manage your boss*" and Gabarro and Kotter's (1980) article "*Managing your boss*", the writers advise managers to learn to manage their boss by learning his/her strengths and weaknesses, what she/he likes and dislikes, his/her interaction style, and the way he/she likes to receive information. Moreover, Henning and Jardim (1977) postulate that women wait to be "chosen" and rely too much on the formal structure of the organization instead of the "informal system" of relationships, and ties. Henning and Jardim's beliefs correspond to organizational theorist Chester Barnard who believed that decision making should consider the informal structure as well. Women can begin to influence the informal structure by identifying the issues occurring on their campuses, and becoming involved in helping to solve those issues in order to increase their visibility.

**Four,** the University of North Carolina Board of Governors should consider giving more universities doctoral status in order to reduce the distance traveled to obtain a doctorate. This researcher lives within 28 miles of East Carolina University in Greenville, NC, but East Carolina only recently became a doctoral institution; consequently, this researcher traveled 77 miles one way to attend North Carolina State in Raleigh. This is very difficult for women with children, a husband, a home to maintain, and a job. Thus, women wait until the children get older, but the women age as well and replace thoughts of advancing with retiring.

**Five**, North Carolina State University should begin a center for the research of community colleges in North Carolina with ongoing analysis and publication of information. Studying the issues in community colleges in North Carolina on an ongoing basis would enhance continuity, growth, and development in the system.

**Recommendations for future research**:

1. A three to five year follow-up to this study.
2. An ethnographic study of community colleges in North Carolina.
3. The heroines in the North Carolina Community College System.
4. The heroines in the Community College Movement.

5. The locus of control and work commitment of women in the North Carolina Community College System.

6. Women's use of power in the North Carolina and the California Community College Systems.

7. A qualitative study to uncover if husband's income is an issue in relocating or desiring to advance for women in both states.

8. An analysis of new hires by gender, ethnicity, position, and salary in the North Carolina Community College System in the last five years.

Finally, in Chapter Two, the researcher hypothesized seven propositions which will be answered based on data from this study.

Proposition 1: Younger women will desire to advance in contrast to older women who will desire to remain at the current level.

**True, age negatively influenced career paths.**

Proposition 2: A negative relationship will exist between women of color and career path.

**False, a positive relationship existed.**

Proposition 3: White women will desire to advance higher than women of color.

**Surprisingly, white women had odds lower than women of color, except for Hispanic women who were already serving at high administrative levels. Although marital status was not significant, white women had the highest marital status but the lowest odds of desiring to advance.**

Proposition 4: Family responsibilities will influence pursuing a doctorate, willingness to relocate, and the availability to serve on committees.

**The present study did not address those issues. However, on family responsibilities, some women indicated they were not interested in moving because of family reasons.**

Proposition 5: Women engaged in the advancement strategies will want to advance.

**True. All of the seven advancement variables, except one, were significant.**

Proposition 6: Gender of supervisor and career path will be mixed.

**True, in three regression analyses, women whose supervisors were men had higher odds of desiring to advance than women with female supervisors. Gender of supervisor was not significant, but had a final p-value of .06 in the last model in which it was significant.**

Proposition 7: The women will differ only in their use of advancement strategies.

**False, the odds of desiring to advance for women in both states were the same for the personal variables, situational variables, and the advancement variables, except for number of applications. The odds for women in North Carolina were higher than the odds for women in California for each additional application.**

In closing, the researcher asked in the introduction if: 1) women were interested in advancing and 2) women were preparing for the new positions that would be created because of retirements. This study disclosed that 32.2% of women were interested in advancing, 40.7% of the women in California and 28.6% of the women in North Carolina.

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# APPENDICES

# APPENDIX A

From: Barry Russell
To: hawkins@WAYNE.WAYNE,
Date: Monday, February 16, 1998 11:01 am
Subject: Dissertation -Reply -Reply -Reply

Annette,
I have told Keith to work with you in any way possible. As you probably know, we do not have the authority to require the colleges to participate but I am confident that they will work with you. With that clarification, you have our full support. Thanks.
Barry

BEST COPY AVAILABLE

## APPENDIX B

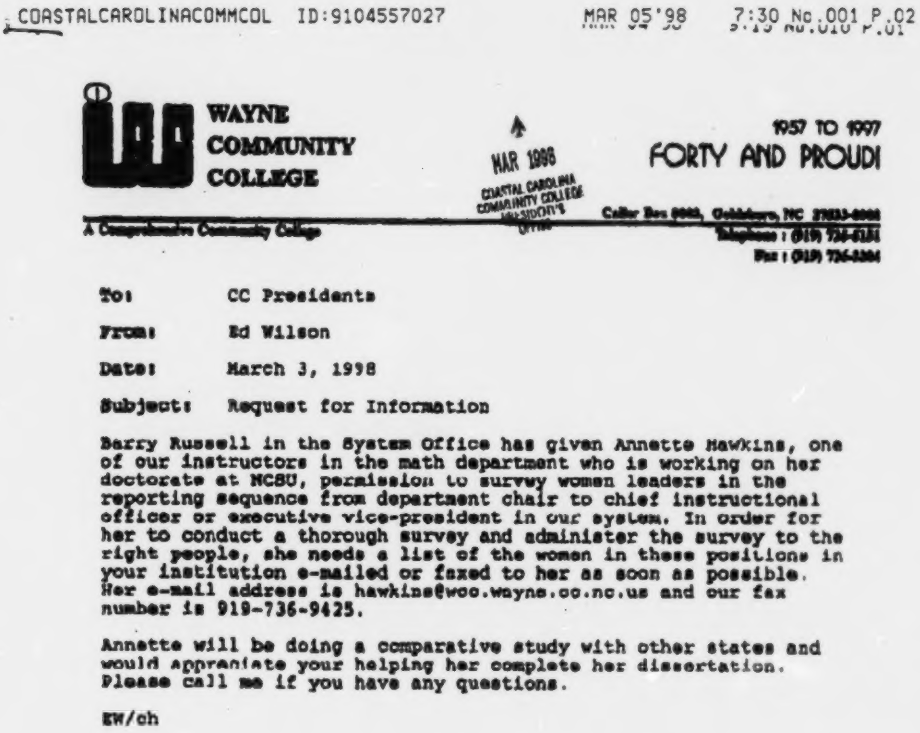
**From:** Ed Wilson
**To:** ncccs.so.CC Presidents
**Date:** Friday, February 27, 1998 9:14 am
**Subject:** Request for Information

Barry Russell in the System Office has given Annette Hawkins, one of our instructors in the math department who is working on her doctorate at NCSU, permission to survey women leaders in the reporting sequence from department chair to chief instructional officer or executive vice-president in our system. In order for her to conduct a thorough survey and administer the survey to the right people, she needs a list of the women in these positions in your institution e-mailed or faxed to her as soon as possible. Her e-mail address is hawkins@wcc.wayne.cc.nc.us and our fax number is 919-736-9425.

Annette will be doing a comparative study with other states and would appreciate your helping her complete her dissertation. Please call me if you have any questions.

BEST COPY AVAILABLE

APPENDIX C



COASTALCAROLINACOMMCOL ID:9104557027 MAR 05'98 7:30 No.001 P.02

**WAYNE COMMUNITY COLLEGE**

A Comprehensive Community College

1957 TO 1997

FORTY AND PROUD!

MAR 1998
COASTAL CAROLINA COMMUNITY COLLEGE PRESIDENT'S OFFICE

Caller Box [illegible], Goldsboro, NC [illegible]
Telephone : (919) [illegible]
Fax : (919) [illegible]

**To:** CC Presidents

**From:** Ed Wilson

**Date:** March 3, 1998

**Subject:** Request for Information

Barry Russell in the System Office has given Annette Hawkins, one of our instructors in the math department who is working on her doctorate at NCSU, permission to survey women leaders in the reporting sequence from department chair to chief instructional officer or executive vice-president in our system. In order for her to conduct a thorough survey and administer the survey to the right people, she needs a list of the women in these positions in your institution e-mailed or faxed to her as soon as possible. Her e-mail address is hawkins@woo.wayne.cc.nc.us and our fax number is 919-736-9425.

Annette will be doing a comparative study with other states and would appreciate your helping her complete her dissertation. Please call me if you have any questions.

EW/ch

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# APPENDIX D

**WAYNE
COMMUNITY
COLLEGE**

A Comprehensive Community College

1957 TO 1997
FORTY AND PROUD!

Caller Box 8002, Goldsboro, NC 27533-8002
Telephone : (919) 735-5151
Fax : (919) 736-3204

Feb. 2, 1998

Annette D. Hawkins
Wayne Community College
3000 Wayne Memorial Drive
Goldsboro, NC 27530

League of California
2017 O Street
Sacramento, Calif

I desire to purchase a 1998 California Community College Directory. I was told that I needed to request a copy by fax. I also understand that the price is $16 plus $1.25 for shipping and handling. I will send that as well.

**Please send the directory to the following address:
Ms. Evelyn Toliver
635 1/2 South Detroit Street
Los Angeles, Calif. 90036**

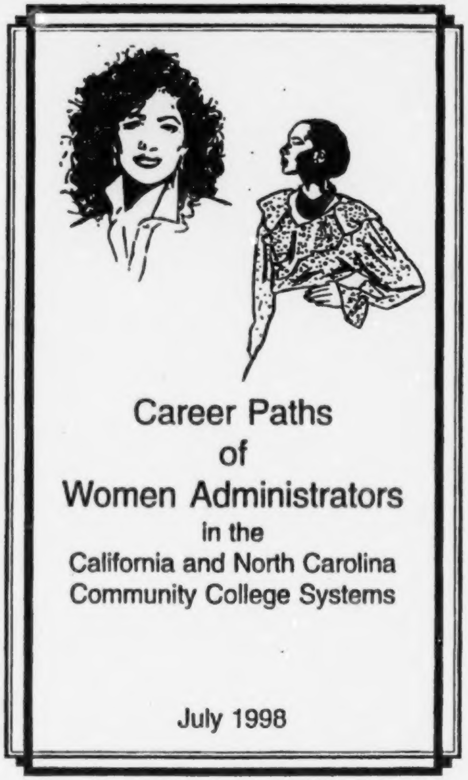
Thanks,
Annette D. Hawkins
Annette D. Hawkins

Post-it® Fax Note 7671

| | | | |
|---|---|---|---|
| | | Date 2-2-98 | # of pages ▸ 1 |
| To 1998 Directory Clerk | | From Annette Hawkins | |
| Co./Dept. California League | | Co. Wayne Community C | |
| Phone # | | Phone # (919) 735-5152 | |
| Fax # 916-444-2954 | | Fax # (919) 736-3204 | |

BEST COPY AVAILABLE

# APPENDIX E



Career Paths
of
Women Administrators
in the
California and North Carolina
Community College Systems

July 1998

## APPENDIX E

### CAREER PATHS OF WOMEN ADMINISTRATORS

The purpose of this survey is to conduct a comparative analysis of women administrators in the North Carolina and California Community College Systems. The analysis specifically compares academic (teaching/instruction) women administrators and looks at the relationship between career paths and personal variables, career paths and professional variables, and career paths and job related variables between the two groups of women.

*In responding to the questions, please put an X in the box ☒ or write your answer on the line. We thank you for your cooperation.*

### PART I. CAREER DATA

1. *The job levels used in the California and North Carolina Community College Systems have been merged to form the seven job levels listed below as defined by the researcher. Some titles are used more than once but the job description is different. Using the description of the job, which title comes closest to describing your present position?*

☐ A. **Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator** - This full-time person has the authority or responsibility for the coordination of primarily one discipline. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. **Associate or Assistant Dean** - (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

☐ C. **Division Chair or Dean** - (This person supervises several or many disciplines; at your school the disciplines may be grouped in academic divisions. This person supervises instructors in some schools because there are no department chairs and may teach one or two classes. In other cases, this person supervises department chairs, program coordinators, or lead instructors. This person reports to the chief instructional officer.)

☐ D. **Associate or Assistant Vice President for Instruction** - (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

☐ E. **Chief Instructional Officer** - (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent or Dean of a campus in a multicampus setting.)

☐ F. **Executive Vice President, Associate or Assistant Chancellor, or Provost** - (This person assists the President of the college or Chancellor of the district in some aspect of management.)

☐ G. **President, Superintendent, Superintendent/President, or Chancellor of a district** - (This is the person who the Board of Trustees holds responsible for operating the college.)

2. *How many years have you served at your current administrative level?* ______________

3. a. *Using the job titles in Question 1, what was your administrative level three years ago?*

☐ A ☐ C ☐ E ☐ G

☐ B ☐ D ☐ F ☐ Other

b. *How long were you at that level?* __________

4. *Again, using the job titles in Question 1, what was your administrative level seven years ago?*

☐ A ☐ C ☐ E ☐ G

☐ B ☐ D ☐ F ☐ Other

b. *How long were you at that level?* __________

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## APPENDIX E

5. *Which item below BEST describes your career goals for the next 5 years? (Choose only one)*

☐ A. Advance to a higher level
☐ B. Remain at my current level
☐ C. Drop back a position or level
☐ D. Leave the community college system
☐ E. Retire
☐ F. Change career track
☐ G. Other

If your response to Question #5 was "A" (Advance to a higher level), then continue with Question #6, otherwise go to Question #8.

6. *Using the titles and descriptions listed below, if you desire to advance higher in the next five years, indicate the highest position to which you aspire.*

☐ A. **Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off-Campus Coordinator** - (This full-time person has the authority or responsibility for the coordination of primarily one discipline. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. **Associate or Assistant Dean** - (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

☐ C. **Division Chair or Dean** - (This person supervises several or many disciplines; at your school the disciplines may be grouped in academic divisions. This person supervises instructors in some schools because there are no department chairs and may teach one or two classes. In other cases, this person supervises department chairs, program coordinators, or lead instructors. This person reports to the chief instructional officer.)

☐ D. **Associate or Assistant Vice President for Instruction** - (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

☐ E. **Chief Instructional Officer** - (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent, or Dean of a campus in a multicampus setting.)

☐ F. **Executive Vice President, Associate or Assistant Chancellor, or Provost** - (This person assists the President of the college or chancellor of the district in some aspect of management.)

☐ G. **President, Superintendent, Superintendent/President, or Chancellor of a district** - (This is the person who the Board of Trustees holds responsible for operating the college.)

7. *On a scale of 1 to 8 with 1 representing the president and 8 representing faculty, how many administrative steps are you from the president at your current level?*

☐ 1
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6
☐ 7
☐ 8

**THE NEXT SECTION ASKS INFORMATION ABOUT YOUR JOB AND WORK EXPERIENCE.**

### PART II. JOB AND WORK EXPERIENCE

8. *Number of years of administrative (planning, coordinating, staffing, supervising) experience.* ___________

9. *Number of years (full-time) at present institution.* ___________

# APPENDIX E

10. *Number of years (full-time) in higher education.* ___________

11. *Sex of immediate supervisor:*
☐ Male ☐ Female

12. *Ethnicity of immediate supervisor:*
☐ A. African-American/Black
☐ B. Asian/Pacific Islander
☐ C. Caucasian
☐ D. Filipino
☐ E. Hispanic/Latino/Latina
☐ F. Native American/American Indian/Alaskan
☐ G. Other

**THE NEXT SECTION ASKS INFORMATION ABOUT YOUR PROFESSIONAL EXPERIENCE.**

## PART III. PROFESSIONAL INFORMATION

13. *How far would you be willing to move to assume a higher position?*
☐ A. Limited miles within the state
☐ B. Anywhere within the state
☐ C. Limited miles outside the state
☐ D. Anywhere outside the state

14. *Number of campus committees that you have served on in the past academic year.*
☐ 0 ☐ 4
☐ 1 ☐ 5
☐ 2 ☐ 5+
☐ 3

15. *Number of external committees/Boards/Taskforces that you have served on in the past academic year.*
☐ 0 ☐ 4
☐ 1 ☐ 5
☐ 2 ☐ 5+
☐ 3

16. *Have you participated in a leadership institute of more than 1 day in duration in the last 5 years?*
☐ Yes ☐ No

17. *If a mentor/sponsor is defined as a person who helps, gives advice, teaches, coaches, speaks on your behalf, recommends you for committees and jobs, gives you visibility, and keeps you informed of what's happening on campus; do you have a mentor/sponsor?*
☐ Yes ☐ No

18. *How many upper level positions have you applied for in the last five years?* ___________

**THE NEXT AND FINAL SECTION ASKS ABOUT PERSONAL INFORMATION.**

## PART IV: PERSONAL DATA

19. *Your present age is* ________.

20. *Your ethnicity:*
☐ A. African-American/Black
☐ B. Asian/Pacific Islander
☐ C. Caucasian
☐ D. Filipino
☐ E. Hispanic/Latino/Latina
☐ F. Native American/American Indian/Alaskan
☐ G. Other

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# APPENDIX E

21. *Your present marital status:*
    - ☐ Single (never married)
    - ☐ Married
    - ☐ Divorced
    - ☐ Other

22. *Your highest degree attained:*
    - ☐ Associate
    - ☐ Bachelor's
    - ☐ Master's
    - ☐ Doctorate
    - ☐ Professional (D.D.S., M.D., J.D.)

23. *If you do not have a doctorate, are you currently pursuing a doctorate?* ☐ Yes ☐ No

24. *List the ages of your children under 18, if any.*

1 ______
2 ______
3 ______
4 ______
5 ______
6 ______

25. *Is the care of a parent or relative (yours or your husband's, if currently married) your responsibility?*
    ☐ Yes ☐ No

26. *Has the care of a parent or relative (yours or your husband's, if currently married) been your responsibility in the last five years?*
    ☐ Yes ☐ No

27. *The location of this educational institution.*
    ☐ CA ☐ NC

If you have any questions or concerns, I can be reached at the numbers and address below.

**Annette D. Hawkins**
**419 Darby Avenue**
**Kinston, NC 28501**

**Work: (919) 735-5152, ext. 709**
**Home: (252) 527-3277**

**e-mail: hawkins@wcc.wayne.cc.nc.us**

**THANK YOU FOR COMPLETING THIS SURVEY!**

# APPENDIX F

Do not mark outside this line

## CAREER PATHS OF WOMEN ADMINISTRATORS

The purpose of this survey is to conduct a comparative analysis of women administrators in the North Carolina and California Community College Systems. The analysis specifically compares academic (teaching/instruction) women administrators and looks at the relationship between career paths and personal variables, career paths and professional variables, and career paths and job related variables between the two groups of women.

Using a #2 pencil, please darken in your responses to each question. We thank you for your cooperation.

### PART I. CAREER DATA

1. THE JOB LEVELS USED IN THE CALIFORNIA AND NORTH CAROLINA COMMUNITY COLLEGE SYSTEMS HAVE BEEN MERGED TO FORM THE Six NINE JOB LEVELS LISTED BELOW AS DEFINED BY THE RESEARCHER. SOME TITLES ARE USED MORE THAN ONCE BUT THE JOB DESCRIPTION IS DIFFERENT. USING THE DESCRIPTION OF THE JOB, WHICH TITLE BEST DESCRIBES YOUR PRESENT POSITION?

☐ A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off Campus Coordinator (This full-time person has the authority or responsibility for the coordination of the discipline, primarily one. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. Associate or Assistant Dean (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

☐ C. Division Chair or Dean (This person supervises several or many disciplines; at your school the disciplines may be grouped in academic divisions. This person supervises instructors in some schools because there are no department chairs and may teach one or two classes. In other cases, this person supervises department chairs, program coordinators, or lead instructors. This person reports to the chief instructional officer.)

☐ D. Associate or Assistant Vice President for Instruction (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

☐ E. Chief Instructional Officer (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent or Dean of a campus in a multicampus setting.)

☐ F. Executive Vice President, Associate or Assistant Chancellor, or Provost (This person assists the President of the college or Chancellor of the district in some aspect of management.)

2. On a scale of 1 to 8 with 1 representing the president and 8 representing faculty, how many steps are you from the president at your current level? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7

3. WHICH ITEM BELOW BEST DESCRIBES YOUR CAREER GOALS FOR THE NEXT 5 YEARS?
   - ☐ A. Advance to a higher level
   - ☐ B. Remain at my current level
   - ☐ C. Drop back a position or level
   - ☐ D. Leave the community college system
   - ☐ E. Retire
   - ☐ F. Change career track
   - ☐ G. Enter private business

If your response to Question #3 was "A" (Advance to a higher level), then continue with Question #4, otherwise go to Part II.

4. USING THE TITLES AND DESCRIPTIONS LISTED BELOW, IF YOU DESIRE TO ADVANCE HIGHER IN THE NEXT FIVE YEARS, INDICATE THE HIGHEST POSITION TO WHICH YOU ASPIRE.

☐ A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off Campus Coordinator (This full-time person has the authority or responsibility for the coordination of the discipline, primarily one. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. Associate or Assistant Dean (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

☐ C. Division Chair or Dean (This person supervises several or many disciplines; at your school the disciplines may be grouped in academic divisions. This person supervises instructors in some schools because there are no department chairs and may teach one or two classes. In other cases, this person supervises department chairs, program coordinators, or lead instructors. This person reports to the chief instructional officer.)

☐ D. Associate or Assistant Vice President for Instruction (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

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# APPENDIX F

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## CAREER PATHS OF WOMEN ADMINISTRATORS
(CONTINUED)

☐ E. Chief Instructional Officer (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent, or Dean of a campus in a multicampus setting.)

☐ F. Executive Vice President, Associate or Assistant Chancellor, or Provost (This person assists the President of the college or chancellor of the district in some aspect of management.)

☐ G. President, Superintendent, Superintendent/President, or Chancellor of a district (This is the person who the Board of Trustees holds responsible for operating the college.

11 changed to 5.

THE NEXT SECTION ASKS INFORMATION ABOUT YOUR JOB AND WORK EXPERIENCE.

### PART II. JOB AND WORK EXPERIENCE

6. Years of administrative experience. ____________
7. Years at current administrative level. ____________
8. Number of years at present institution. ____________
9. Number of years in higher education. ____________
10. Sex of immediate supervisor: ☐ Male ☐ Female
11. Ethnicity of immediate supervisor:
    - ☐ A. Africian-American/Black
    - ☐ B. Asian/Pacific Islander
    - ☐ C. Caucasian
    - ☐ D. Filipino
    - ☐ E. Hispanic
    - ☐ F. Native American/American Indian/Alaskan
    - ☐ G. Other

THE NEXT SECTION ASKS INFORMATION ABOUT YOUR PROFESSIONAL EXPERIENCE.

### PART III. PROFESSIONAL INFORMATION

5 11. Are you pursuing a doctorate? ☐ Yes ☐ No

12. How far would you be willing to move to assume a higher position?
    - ☐ A. Limited miles within the state
    - ☐ B. Anywhere within the state
    - ☐ C. Limited miles outside the state
    - ☐ D. Anywhere outside the state

13. Number of campus committees that you serve on. ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 5+
14. Number of external committees/Boards/Taskforces that you serve on. ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 5+
15. Have you participated in a leadership institute of more than 1 day in duration in the last 5 years? ☐ Yes ☐ No
16. If a mentor/sponsor is defined as a person who helps, gives advice, teaches, coaches, speaks on your behalf, recommends you for committees and jobs, gives you visibility, and keeps you informed of what's happening on campus, do you have a mentor/sponsor? ☐ Yes ☐ No
17. How many upper level positions have you applied for in the last five years? ________

THE NEXT AND FINAL SECTION ASKS ABOUT PERSONAL INFORMATION.

### PART IV: PERSONAL DATA

18. Your present age is __________.
19. Your ethnicity:
    - ☐ A. African-American/Black
    - ☐ B. Asian/Pacific Islander
    - ☐ C. Caucasian
    - ☐ D. Native American/American Indian/Alaskan
    - ☐ E. Filipino
    - ☐ F. Hispanic
    - ☐ G. Other
20. Your present marital status:
    - ☐ Single (never married)
    - ☐ Married
    - ☐ Divorced
    - ☐ Other
21. Your educational level: ☐ Associate ☐ Bachelor's ☐ Master's ☐ Doctorate ☐ Professional
22. List the ages of your children under 18. ☐ 1.____ ☐ 2.____ ☐ 3.____ ☐ 4.____ ☐ 5.____ ☐ 6.____
23. Your spouse's income (if not married enter 0). ☐ 0 ☐ Dollar Range ____________
24. Is the care of a parent or relative your responsibility? ☐ Yes ☐ No

THANK YOU FOR COMPLETING THIS SURVEY

Annette D. Hawkins
419 Darby Avenue
Kinston, N.C. 28501

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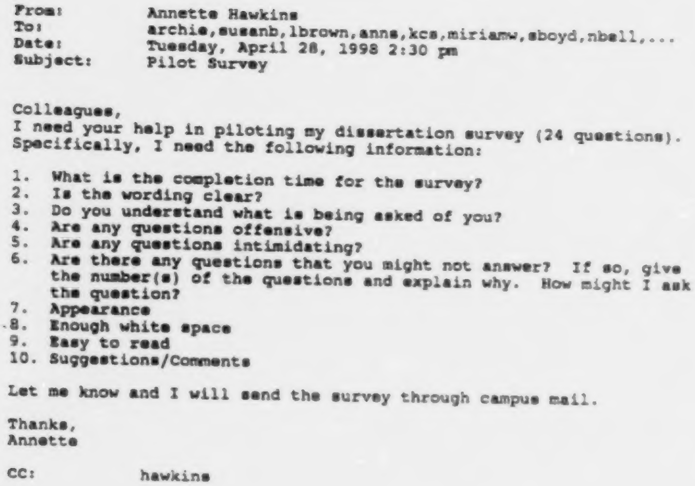
# APPENDIX G



From: Annette Hawkins
To: archie,susanb,lbrown,anns,kcs,miriamw,sboyd,nbell,...
Date: Tuesday, April 28, 1998 2:30 pm
Subject: Pilot Survey

Colleagues,
I need your help in piloting my dissertation survey (24 questions). Specifically, I need the following information:

1. What is the completion time for the survey?
2. Is the wording clear?
3. Do you understand what is being asked of you?
4. Are any questions offensive?
5. Are any questions intimidating?
6. Are there any questions that you might not answer? If so, give the number(s) of the questions and explain why. How might I ask the question?
7. Appearance
8. Enough white space
9. Easy to read
10. Suggestions/Comments

Let me know and I will send the survey through campus mail.

Thanks,
Annette

CC: hawkins

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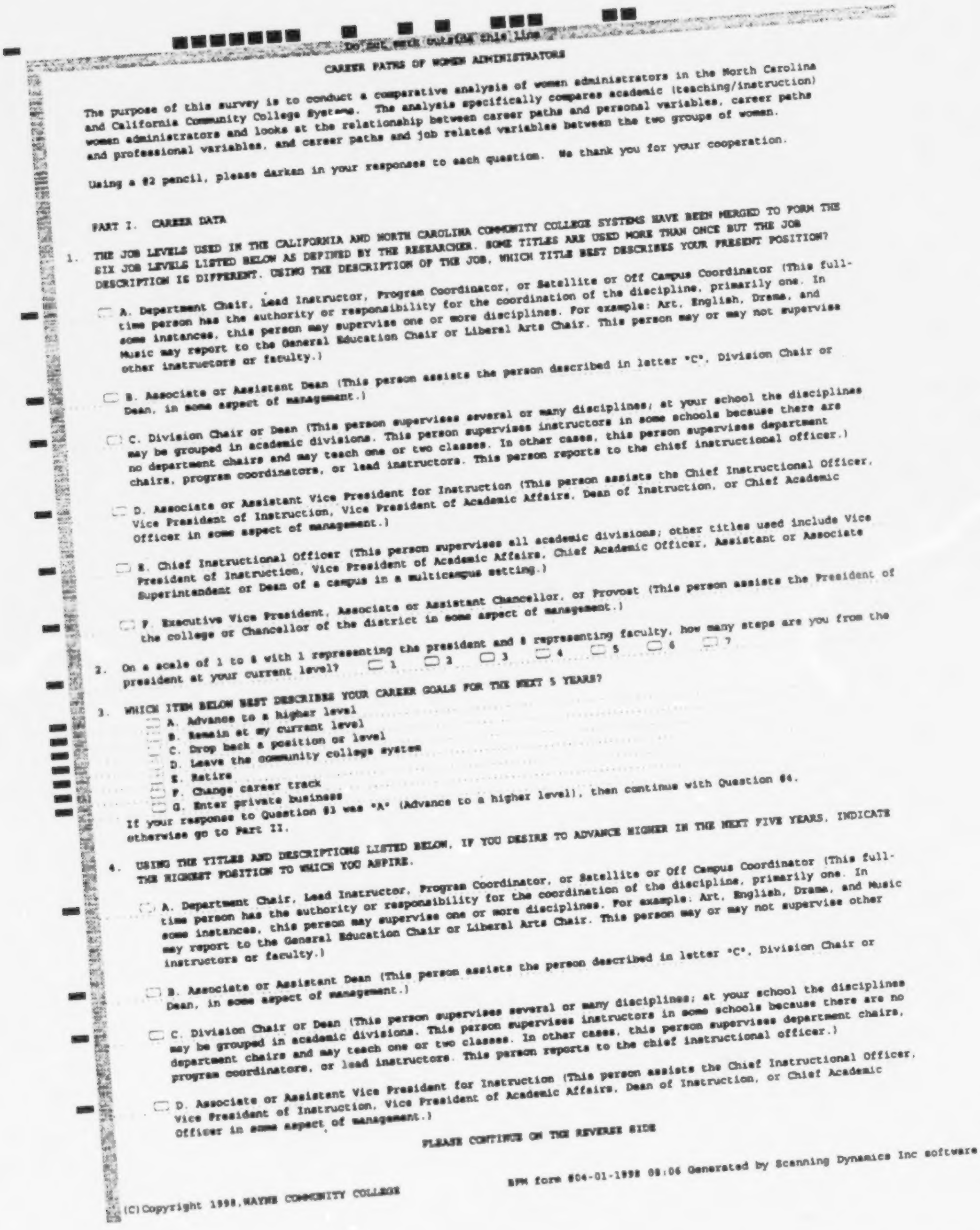
# APPENDIX H



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Using a #2 pencil, please darken in your responses to each question. We thank you for your cooperation.

### PART I. CAREER DATA

1. THE JOB LEVELS USED IN THE CALIFORNIA AND NORTH CAROLINA COMMUNITY COLLEGE SYSTEMS HAVE BEEN MERGED TO FORM THE SIX JOB LEVELS LISTED BELOW AS DEFINED BY THE RESEARCHER. SOME TITLES ARE USED MORE THAN ONCE BUT THE JOB DESCRIPTION IS DIFFERENT. USING THE DESCRIPTION OF THE JOB, WHICH TITLE BEST DESCRIBES YOUR PRESENT POSITION?

☐ A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off Campus Coordinator (This full-time person has the authority or responsibility for the coordination of the discipline, primarily one. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. Associate or Assistant Dean (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

☐ C. Division Chair or Dean (This person supervises several or many disciplines; at your school the disciplines may be grouped in academic divisions. This person supervises instructors in some schools because there are no department chairs and may teach one or two classes. In other cases, this person supervises department chairs, program coordinators, or lead instructors. This person reports to the chief instructional officer.)

☐ D. Associate or Assistant Vice President for Instruction (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

☐ E. Chief Instructional Officer (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent or Dean of a campus in a multicampus setting.)

☐ F. Executive Vice President, Associate or Assistant Chancellor, or Provost (This person assists the President of the college or Chancellor of the district in some aspect of management.)

2. On a scale of 1 to 8 with 1 representing the president and 8 representing faculty, how many steps are you from the president at your current level? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7

3. WHICH ITEM BELOW BEST DESCRIBES YOUR CAREER GOALS FOR THE NEXT 5 YEARS?

☐ A. Advance to a higher level
☐ B. Remain at my current level
☐ C. Drop back a position or level
☐ D. Leave the community college system
☐ E. Retire
☐ F. Change career track
☐ G. Enter private business

If your response to Question #3 was "A" (Advance to a higher level), then continue with Question #4, otherwise go to Part II.

4. USING THE TITLES AND DESCRIPTIONS LISTED BELOW, IF YOU DESIRE TO ADVANCE HIGHER IN THE NEXT FIVE YEARS, INDICATE THE HIGHEST POSITION TO WHICH YOU ASPIRE.

☐ A. Department Chair, Lead Instructor, Program Coordinator, or Satellite or Off Campus Coordinator (This full-time person has the authority or responsibility for the coordination of the discipline, primarily one. In some instances, this person may supervise one or more disciplines. For example: Art, English, Drama, and Music may report to the General Education Chair or Liberal Arts Chair. This person may or may not supervise other instructors or faculty.)

☐ B. Associate or Assistant Dean (This person assists the person described in letter "C", Division Chair or Dean, in some aspect of management.)

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☐ D. Associate or Assistant Vice President for Instruction (This person assists the Chief Instructional Officer, Vice President of Instruction, Vice President of Academic Affairs, Dean of Instruction, or Chief Academic Officer in some aspect of management.)

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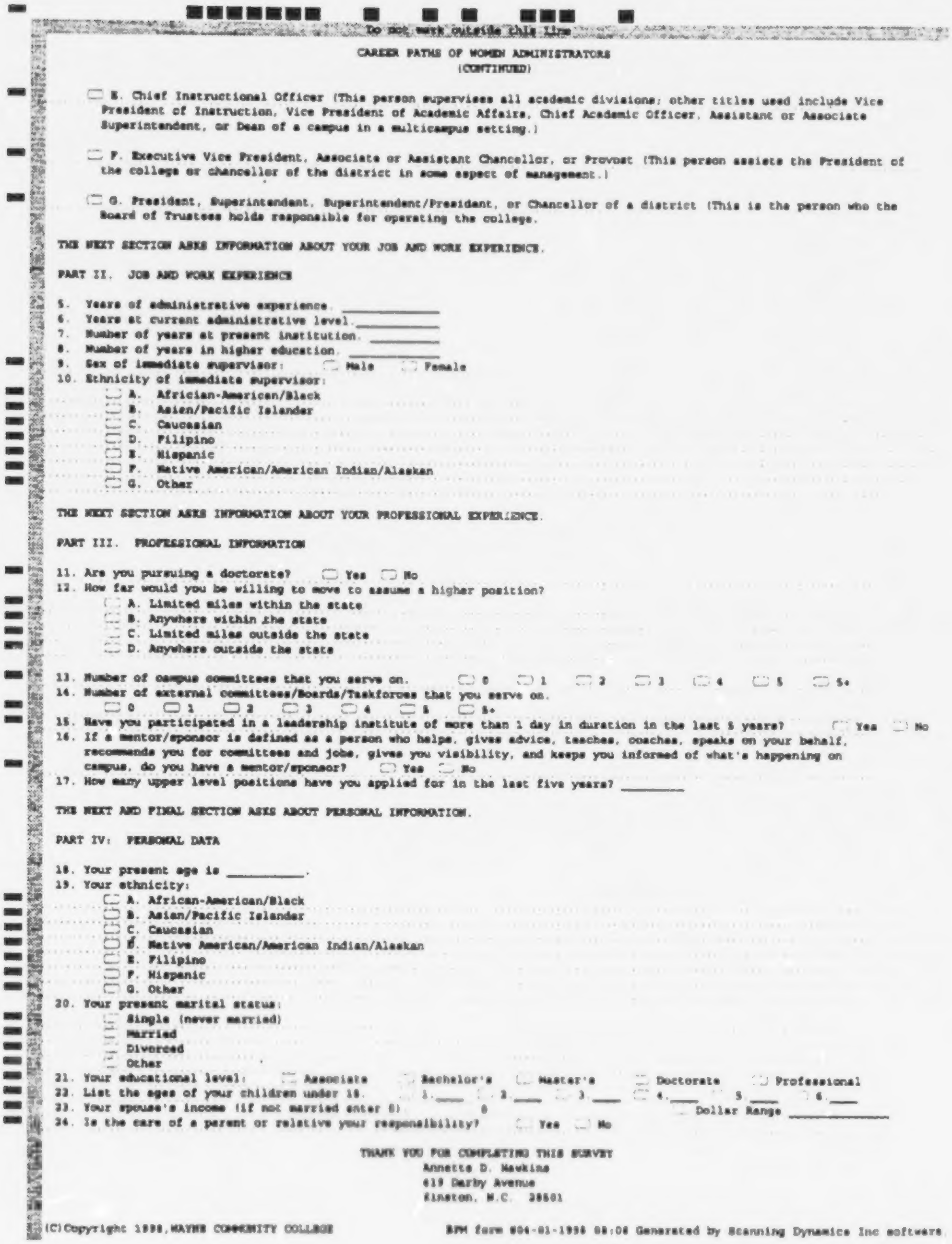
# APPENDIX H



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CAREER PATHS OF WOMEN ADMINISTRATORS
(CONTINUED)

☐ E. Chief Instructional Officer (This person supervises all academic divisions; other titles used include Vice President of Instruction, Vice President of Academic Affairs, Chief Academic Officer, Assistant or Associate Superintendent, or Dean of a campus in a multicampus setting.)

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THE NEXT SECTION ASKS INFORMATION ABOUT YOUR JOB AND WORK EXPERIENCE.

PART II. JOB AND WORK EXPERIENCE

5. Years of administrative experience. ____________
6. Years at current administrative level. ____________
7. Number of years at present institution. ____________
8. Number of years in higher education. ____________
9. Sex of immediate supervisor: ☐ Male ☐ Female
10. Ethnicity of immediate supervisor:
    - ☐ A. Africian-American/Black
    - ☐ B. Asian/Pacific Islander
    - ☐ C. Caucasian
    - ☐ D. Filipino
    - ☐ E. Hispanic
    - ☐ F. Native American/American Indian/Alaskan
    - ☐ G. Other

THE NEXT SECTION ASKS INFORMATION ABOUT YOUR PROFESSIONAL EXPERIENCE.

PART III. PROFESSIONAL INFORMATION

11. Are you pursuing a doctorate? ☐ Yes ☐ No
12. How far would you be willing to move to assume a higher position?
    - ☐ A. Limited miles within the state
    - ☐ B. Anywhere within the state
    - ☐ C. Limited miles outside the state
    - ☐ D. Anywhere outside the state
13. Number of campus committees that you serve on. ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 5+
14. Number of external committees/Boards/Taskforces that you serve on.
    ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 5+
15. Have you participated in a leadership institute of more than 1 day in duration in the last 5 years? ☐ Yes ☐ No
16. If a mentor/sponsor is defined as a person who helps, gives advice, teaches, coaches, speaks on your behalf, recommends you for committees and jobs, gives you visibility, and keeps you informed of what's happening on campus, do you have a mentor/sponsor? ☐ Yes ☐ No
17. How many upper level positions have you applied for in the last five years? ________

THE NEXT AND FINAL SECTION ASKS ABOUT PERSONAL INFORMATION.

PART IV: PERSONAL DATA

18. Your present age is __________.
19. Your ethnicity:
    - ☐ A. African-American/Black
    - ☐ B. Asian/Pacific Islander
    - ☐ C. Caucasian
    - ☐ D. Native American/American Indian/Alaskan
    - ☐ E. Filipino
    - ☐ F. Hispanic
    - ☐ G. Other
20. Your present marital status:
    - ☐ Single (never married)
    - ☐ Married
    - ☐ Divorced
    - ☐ Other
21. Your educational level: ☐ Associate ☐ Bachelor's ☐ Master's ☐ Doctorate ☐ Professional
22. List the ages of your children under 18. ☐ 1.____ ☐ 2.____ ☐ 3.____ ☐ 4.____ ☐ 5.____ ☐ 6.____
23. Your spouse's income (if not married enter 0) ☐ 0 ☐ Dollar Range ____________
24. Is the care of a parent or relative your responsibility? ☐ Yes ☐ No

THANK YOU FOR COMPLETING THIS SURVEY
Annette D. Hawkins
619 Darby Avenue
Kinston, N.C. 28501

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# APPENDIX I

**WAYNE
COMMUNITY
COLLEGE**

1957 TO 1997
FORTY AND PROUD!

**Caller Box 8002, Goldsboro, NC 27533-8002**

**A Comprehensive Community College**

**Telephone : (919) 735-5151**
**Fax : (919) 736-3204**

419 Darby Avenue
Kinston, NC 28501

May 8, 1998

«FirstName» «LastName»
«Company»
«Address1»
«City» «State» «PostalCode»

Dear «FirstName» «LastName»:

I am a doctoral student in Adult and Community College Education at North Carolina State University in Raleigh, North Carolina and need your help. I desire to compare the career paths of women administrators in the North Carolina Community College System with women administrators in the California Community College System. Specifically, I want to compare career paths with personal variables like age, ethnicity, and marital status; career paths with job data variables like administrative experience and number of years in higher education; and career paths with professional variables like membership on campus committees and participation in leadership institutes. How can you help?

I need for you to answer the questions on my survey and then give me some feedback using the enclosed feedback sheet as a guide. If you feel that you are not an administrator, still answer the questions by responding "no" or "zero" where appropriately. I have enclosed a return stamped envelope for your convenience in returning your feedback. If you prefer to make comments on the survey and return the survey instead of the feedback sheet, feel free to do so. I thank you so much in helping me pilot test my dissertation survey and look forward to reading your comments.

Sincerely,

Annette D. Hawkins
Math Instructor
Wayne Community College
Goldsboro, NC 27530
(919) 735-5152, extension 709

Enclosures

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APPENDIX J

# For Your Information

1. What is the completion time for the survey?
2. Is the wording clear?
3. Do you understand what is being asked of you?
4. Are any questions offensive?
5. Are any questions intimidating?
6. Are there any questions that you might not answer? If so, give the number(s) of the questions and explain why. How might I ask the question?
7. Is there enough white space?
8. Is the survey easy to read?
9. How would you rate the overall appearance?
10. Suggestions/comments.

Annette D. Hawkins 419 Darby Avenue Kinston, NC 28501 Career Paths of Women

APPENDIX K

**WAYNE**
**COMMUNITY**
**COLLEGE**

1957 TO 1997
FORTY AND PROUD!

**Caller Box 8002, Goldsboro, NC 27533-8002**

**A Comprehensive Community College**

**Telephone : (919) 735-5151**
**Fax : (919) 736-3204**

July 1, 1998

Ms.
Piedmont Community College
P O Box 1197
Roxboro, NC 27573

Dear Ms.

I am a doctoral student in the department of Adult and Community College Education at North Carolina State University in Raleigh, North Carolina. Presently, I am conducting a study which will compare women academic administrators in the North Carolina Community College System with women administrators in the California Community College System. The term administrator used in this survey applies to anyone who "plans, staffs, supervises, and/or coordinates". Specifically, I want to examine the relationship between career paths and the following: personal variables like age and marital status; job data variables like number of years in higher education; and professional variables like participation in a leadership institute.

Many community colleges in the United States, including community colleges in California and North Carolina, are entering their fifth generation and experiencing personnel turnover through retirements, promotions, and resignations. I believe that women administrators represent a large talent pool from which to select future administrators. However, are women administrators interested and are they preparing themselves professionally and personally to assume these positions? I need your help in answering these questions. Although studies of this nature exist for women in business, higher education, and public schools, very few exist for women administrators in community colleges. Your responses to the survey items will help to add to the limited research that exists on this important group of women administrators.

I am asking that you answer all questions on the survey and return it to me in the enclosed stamped addressed envelope. Please be assured of complete confidentiality. The identification number on the survey is for mailing purposes only so that I can check your name off of the mailing list when you return your survey. Your name will never be placed on the survey and the list containing your name and identification number will not be released to anyone and will be destroyed after the completion of this research. Any results reported will be from a group standpoint only.

If you have questions, I can be reached at (919) 735-5152, ext. 709 or you can contact my advisor, Dr. Rosemary Gillett-Karam at (919) 515-6317. In North Carolina, all presidents are aware of this study because my president, Dr. Edward Wilson, Jr., obtained the names from them for me and his signature is also on this letter. In California, I e-mailed all presidents informing them of this study and I have been in contact with about seven people in California who have been so kind in talking to me and answering my many questions about the California system.

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## APPENDIX K

**WAYNE
COMMUNITY
COLLEGE**

1957 TO 1997
FORTY AND PROUD!

**Caller Box 8002, Goldsboro, NC 27533-8002**

**A Comprehensive Community College**

**Telephone : (919) 735-5151**
**Fax : (919) 736-3204**

I know that you are busy, so I want to thank you in advance for participating in this study. If you desire results of the study, write "results requested" on the back of the return envelope. Please do not write this on the survey. Again, thank you!

Sincerely,

Annette D. Hawkins

Annette D. Hawkins
Doctoral Student

Dr. Edward Wilson, Jr., President
Wayne Community College

Enclosures

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# APPENDIX L

WAYNE
COMMUNITY
COLLEGE

1957 TO 1997
FORTY AND PROUD!

Caller Box 8002, Goldsboro, NC 27533-8002

A Comprehensive Community College

Telephone : (919) 735-5151
Fax : (919) 736-3204

July 27, 1998

«FirstName» «LastName»
«Company» «Company_2»
«Address1»
«City», «State» «PostalCode»

Dear «FirstName» «LastName»:

About three weeks ago, I wrote to you requesting your participation in a study of career paths of women administrators in the North Carolina and California Community Colleges. A study of this type, comparing women administrators in two different community college systems, has not been conducted before. As of today, I have not received your completed survey. I am writing again because of the significance of this study for women.

As I stated in my first letter, many community colleges are experiencing personnel turnover through retirements, promotions, and resignations. Who will replace these employees? What talent pool will be used? I believe women represent a large talent pool from which to select future administrators. However, are women interested in assuming these positions? If you are not interested in changing positions, which is fine, I still need to hear from you in order to get a true representation of the career paths of women administrators in the two community college systems. Another reason I would like to hear from everyone is because community college women have been criticized in the literature for being silent. An abundance of literature exists on women in business, four-year institutions, and public schools, but not on women in community colleges. This research will add to the limited data that exist on women administrators in community colleges.

Just in case your survey has been misplaced, I am enclosing a replacement which should take no more than 15 minutes to complete. You can be assured of complete confidentiality. I thank you in advance for your time. If you have any questions, I can be reached at (919) 735-5152, extension 709. Again, thanks so much.

Sincerely,

Annette D. Hawkins
Doctoral Candidate

Enclosures

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# APPENDIX M

**WAYNE**
**COMMUNITY**
**COLLEGE**

1957 TO 1997
FORTY AND PROUD!

**Caller Box 8002, Goldsboro, NC 27533-8002**
**A Comprehensive Community College**
**Telephone : (919) 735-5151**
**Fax : (919) 736-3204**

August 24, 1998

«First_Name» «Last_Name»
«Company1» «Company2»
«Address»
«City», «State» «Zip»

Dear «First_Name» «Last_Name»:

About seven weeks ago, I wrote to you requesting your participation in a study of career paths of women administrators in the North Carolina and California Community Colleges. A study of this type, comparing women administrators in two different community college systems, has not been conducted before. As of today, I have not received your completed survey.

The response rate from women in both states have been overwhelming. However, your response and others who have not yet responded are necessary to accurately and truthfully describe the career paths of women administrators in both states. I know that you are extremely busy and I apologize for this interruption yet again. Since this is the first study of this type, the results will probably be of interest to you, other women organizations, and policy makers in your state.

Just in case your survey has been misplaced, I am enclosing a replacement which should take no more than 15 minutes to complete. If you have already mailed your survey, I thank you and please disregard this letter. I thank you in advance for your time. If you have any questions, I can be reached at (919) 735-5152, extension 709. If you desire results of the survey, write "results requested" on the return envelope. Again, thanks so much.

Sincerely,

Annette D. Hawkins
Doctoral Candidate

Enclosures

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## APPENDIX N

**Understanding Interaction**:

**Age and Age times Age**

The odds of desiring to advance for age is not the same for all age groups because of the interaction term age times age. To compute the odds ratio for a squared term which age times age is classified, the following formula is used:

Let $\beta_1$ = the coefficient of age

Let $\beta_2$ = the coefficient of age * age

Thus, the parameter coefficient of age is:

Parameter coefficient of age = $\beta_1 + \beta_2 + 2\beta_2 age$ (DeMaris, 1995)

Parameter coefficient of age = $0.1972 - 0.0026 + 2(-0.0026)age$

Parameter coefficient $= 0.1946 - 0.0052age$

The odds ratio of age is now: $e^{0.1946}\left(e^{-0.0052age}\right) = \dfrac{e^{0.1946}}{\left(e^{0.0052age}\right)}$

| Age | Odds Ratio |
|---|---|
| 25 | $\dfrac{e^{0.1946}}{\left(e^{0.0052\,x\,25}\right)} = 1.0667$<br>( the odds of desiring to advance increase 6.67%) |
| 30 | $\dfrac{e^{0.1946}}{\left(e^{0.0052\,x\,30}\right)} = 1.039$ (the odds of desiring to advance increase 3.9%) |

37 $\frac{e^{0.1946}}{\left(e^{0.0052x37}\right)}$ = 1.0022 (the odds are about the same)

37.5 $\frac{e^{0.1946}}{\left(e^{0.0052x37.5}\right)}$ = 0.9996 (the odds begin to decrease)

40 $\frac{e^{0.1946}}{\left(e^{0.0052x40}\right)}$ = 0.9866 (the odds of desiring to advance decreased 1.34%)

**Marital Status and Marital Status times State**

This interaction effect is quite simple. Let $\beta_1$ be the coefficient of **Mar1 (singles)** and $\beta_2$ the coefficient of **Mar1 times state**. Thus, we now have: $\beta_1$**(Mar1)** + $\beta_2$ **(Mar1*st)** which factors into **Mar1 *** ( $\beta_1 + \beta_2$ st). Thus, the coefficient of **Mar1(single)** is equal to ( $\beta_1 + \beta_2$ st) = $(-0.2407 + 0.3057st)$. So, the odds ratio is now $e^{(-0.2407 + 0.3057st)}$. By letting st equal 1, the odds ratio for California can be computed which is $e^{(-0.2407 + 0.3057*1)} = e^{.065} = 1.067$. Now computing for North Carolina, let st equal 0, the odds ratio for North Carolina becomes $e^{(-0.2407 + 0.3057*0)} = e^{-0.2407} = 0.7861$. Write this answer as a fraction: $\frac{0.7861}{1}$, now divide the numerator and denominator by 0.7861 (this is computed this way because the odds ratio is less than 1) which gives $\frac{1}{1.27}$. The numerator gives the singles and the denominator gives the married women. So, the odds of desiring to advance for married women were 1.27 times the odds of the singles.

Divorced:

$0.5334\,Mar3 - 1.2772st * Mar3 = Mar3(0.5334 - 1.2772st) = e^{(0.5334 - 1.2772st)}$

Let st equal 1 for California: $e^{-0.7438} = 0.4753 = \frac{0.4753}{1} = \frac{1}{2.10}$

Let st equal 0 for North Carolina: $e^{0.5334} = 1.7047$

Other:

$-0.1040\,Mar4 + 0.6872st * Mar4 = Mar4(-0.1040 + 0.6872st) = e^{(-0.1040 + 0.6872st)}$

Let st equal 1 for California: $e^{(-0.1040 + 0.6872)} = e^{0.5832} = 1.7917$

Let st equal 0 for North Carolina: $e^{(-0.1040)} = e^{-0.1040} = 0.9012 = \frac{0.9012}{1} = \frac{1}{1.1096}$

**Applications and Applications times State**

Let $\beta_1$ be the coefficient of **Appl** and $\beta_2$ the coefficient of **Appl times state**. Thus, we now have: $\beta_1$**(Appl)** + $\beta_2$ **(Appl*st)** which factors into **Appl** * ($\beta_1 + \beta_2$ st). Thus, the coefficient of **Appl** is equal to ($\beta_1 + \beta_2$ st) = $(0.7382 - 0.6612st)$. So, the odds ratio is now $e^{(0.7382 - 0.6612st)}$. By letting st equal 1, the odds ratio for California can be computed which is $e^{(0.7382 - 0.6612*1)} = e^{0.077} = 1.08$. Now computing for North Carolina yields $e^{(0.7382 - 0.6612*0)} = e^{0.7382} = 2.09$.

### When the Odds Ratio Is Less Than One

**Step 1:** Write the odds ratio as a fraction: $\frac{0.6499}{1}$. The numerator gives the odds for women who were caregivers at the time of the study and the denominator gives the odds for women who were not caregivers at the time of the study.

**Step 2:** Divide the numerator, 0.6499, by 0.6499 and the denominator, 1, by 0.6499 which computes to $\frac{1}{1.54}$. This indicates that the odds of desiring to advance for women who were not caregivers at the time of the study were 1.54 times the odds of women who were caregivers. In other words, the present caregivers were less likely to have desired to advance.

## APPENDIX O

**Cross Tabulations of Mean Age, Marital Status, Educational Level, Number of Children between 0 to 5, Number of Children between 6 to 11, Number of Children between 12 to 17, Elder Care Presently, and Elder Care in the Past by Ethnicity**

| Variable | African American | | Asian/Pacific Islander | | Caucasian | | Filipino | | Hispanic Latino/Latina | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC |
| | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| | 15 | 36 | 6 | 3 | 148 | 407 | 2 | 0 | 12 | 2 | 1 | 5 | 5 | 1 |
| **Age (Mean)** | 54 | 49.2 | 53 | 46.3 | 52 | 48.2 | 47.5 | 0 | 53 | 48.5 | 51 | 51.2 | 50 | 43 |
| **Marital Status (%)** | | | | | | | | | | | | | | |
| Single (never married) | 7 | 14 | 0 | 0 | 11 | 8 | 0 | 0 | 8 | 0 | 0 | 0 | 20 | 0 |
| Married | 33 | 53 | 83 | 100 | 63 | 75 | 50 | 0 | 42 | 50 | 100 | 60 | 60 | 100 |
| Divorced | 47 | 22 | 17 | 0 | 21 | 14 | 50 | 0 | 33 | 50 | 0 | 40 | 20 | 0 |
| Other | 13 | 11 | 0 | 0 | 5 | 3 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Degree (%)** | | | | | | | | | | | | | | |
| Associate | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 6 |
| Bachelor's | 0 | 0 | 0 | 0 | 0.6 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Master's | 53 | 83 | 67 | 100 | 61.5 | 69 | 100 | 0 | 42 | 0 | 0 | 60 | 40 | 100 |
| Doctorate | 47 | 14 | 33 | 0 | 36.5 | 10 | 0 | 0 | 50 | 100 | 100 | 0 | 60 | 0 |
| Professional (D.D.S., M.D., J.D.) | 0 | 3 | 0 | 0 | 1.4 | 3 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Children (%) (0 to 5)** | | | | | | | | | | | | | | |
| 0 | 100 | 94 | 83 | 100 | 99 | 95 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1 | 0 | 6 | 17 | 0 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |

**Cross Tabulations of Mean Age, Marital Status, Educational Level, Number of Children between 0 to 5, Number of Children between 6 to 11, Number of Children between 12 to 17, Elder Care Presently, and Elder Care in the Past by Ethnicity (cont'd)**

| Variable | African American | | Asian/Pacific Islander | | Caucasian | | Filipino | | Hispanic Latino/Latina | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC |
| | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| | 15 | 36 | 6 | 3 | 148 | 407 | 2 | 0 | 12 | 2 | 1 | 5 | 5 | 1 |
| **Children (%) (6 to 11)** | | | | | | | | | | | | | | |
| 0 | 93 | 92 | 83 | 67 | 92.6 | 85 | 50 | 0 | 100 | 100 | 100 | 80 | 100 | 100 |
| 1 | 7 | 3 | 17 | 33 | 6 | 12 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| 2 | 0 | 5 | 0 | 0 | .7 | 3 | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | .7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Children (%) (12 to 17)** | | | | | | | | | | | | | | |
| 0 | 80 | 86 | 83 | 67 | 86 | 75 | 100 | 0 | 92 | 50 | 100 | 80 | 80 | 10 |
| 1 | 20 | 11 | 17 | 33 | 9 | 18.2 | 0 | 0 | 0 | 50 | 0 | 20 | 20 | 0 |
| 2 | 0 | 0 | 0 | 0 | 4 | 6.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 3 | 0 | 0 | 1 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0.2 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Caregiver Presently (%)** | | | | | | | | | | | | | | |
| No | 80 | 94 | 100 | 67 | 82 | 78 | 0 | 0 | 67 | 100 | 100 | 80 | 80 | 100 |
| Yes | 20 | 6 | 0 | 33 | 18 | 22 | 100 | 0 | 33 | 0 | 0 | 20 | 20 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Caregiver in the Past (%)** | | | | | | | | | | | | | | |
| No | 67 | 81 | 100 | 67 | 72 | 71 | 0 | 0 | 67 | 50 | 100 | 80 | 40 | 100 |
| Yes | 33 | 19 | 0 | 33 | 28 | 29 | 100 | 0 | 33 | 50 | 0 | 20 | 60 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |

**Cross Tabulations of Willingness to Move, Mean Number of Campus Committees/Taskforces, Mean Number of External Committees/Taskforces, Have a Mentor/Sponsor (%), Participation in a Leadership Institute (%), by Ethnicity**

| Variable | African American | | Asian/Pacific Islander | | Caucasian | | Filipino | | Hispanic Latino/Latina | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC |
| | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| | 15 | 36 | 6 | 3 | 148 | 407 | 2 | 0 | 12 | 2 | 1 | 5 | 5 | 1 |
| **Willingness to Move (%)** | | | | | | | | | | | | | | |
| Not Willing to Move | 6.7 | 5.5 | 0 | 0 | 17 | 13 | 0 | 0 | 16.7 | 0 | 0 | 20 | 0 | 0 |
| Limited Miles Within State | 60 | 67 | 67 | 100 | 62 | 66 | 100 | 0 | 66.6 | 0 | 0 | 80 | 80 | 0 |
| Anywhere Within State | 26.6 | 2.7 | 33 | 0 | 7 | 7 | 0 | 0 | 0 | 0 | 100 | 0 | 20 | 0 |
| Limited Miles Outside State | 0 | 11 | 0 | 0 | 5 | 6 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 0 |
| Anywhere Outside State | 6.7 | 13.8 | 0 | 0 | 9 | 8 | 0 | 0 | 16.7 | 50 | 0 | 0 | 0 | 100 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Campus Committees (Mean) Taskforces** | 4.9 | 3.7 | 5.7 | 2.3 | 5 | 3.3 | 2.5 | 0 | 5.7 | 5 | 6 | 3.8 | 4.4 | 1 |
| **External Committees (Mean)** Taskforces | 3 | 3 | 2.5 | 2 | 3 | 2 | 3.5 | 0 | 4.3 | 1.5 | 5 | 1 | 2.6 | 5 |
| **Leadership Institute (%)** | | | | | | | | | | | | | | |
| No | 7 | 36 | 33 | 100 | 22 | 47 | 0 | 0 | 8 | 0 | 0 | 40 | 0 | 0 |
| Yes | 93 | 64 | 67 | 0 | 78 | 53 | 100 | 0 | 92 | 100 | 100 | 60 | 100 | 100 |
| **Total** | | | | | | | | | | | | | | |
| **Mentor/Sponsor (%)** | | | | | | | | | | | | | | |
| No | 53 | 69 | 50 | 33 | 55 | 54 | 50 | 0 | 58 | 100 | 0 | 40 | 20 | 0 |
| Yes | 47 | 31 | 50 | 67 | 45 | 46 | 50 | 0 | 42 | 0 | 100 | 60 | 80 | 100 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

## Cross Tabulations of Current Level, Years at the Institution, Administrative Experience, Years in Higher Education, Years at Level by Ethnicity

| Variable | African American | | Asian/Pacific Islander | | Caucasian | | Filipino | | Hispanic Latino/Latina | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC |
| | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| | 15 | 36 | 6 | 3 | 148 | 407 | 2 | 0 | 12 | 2 | 1 | 5 | 5 | 1 |
| **Current Level (Mean)** | 3.4 | 1.72 | 3.7 | 1.7 | 3.24 | 1.6 | 2.5 | 0 | 3.8 | 3.5 | 3 | 1 | 2.8 | 1 |
| **Years at Institution (Mean)** | 13 | 14.8 | 14 | 14 | 12 | 12.7 | 12 | 0 | 15 | 7 | 2 | 14.9 | 7.3 | 0.5 |
| **Administrative Experience (Mean)** | 11 | 14 | 11 | 2.7 | 14 | 11.6 | 16 | 0 | 13.4 | 6.5 | 10 | 12.1 | 14.6 | 12 |
| **Years in Higher Education (Mean)** | 22 | 16 | 23 | 14 | 20 | 15.6 | 18.5 | 0 | 21.8 | 16 | 20 | 17.3 | 17 | 2 |
| **Years at Level (Mean)** | 6 | 8.4 | 5 | 2.7 | 5.6 | 7.3 | 3 | 0 | 5.6 | 3.2 | 2 | 10.5 | 3.3 | 0.67 |

## Cross Tabulations of Advancement Goals by Ethnicity

| Variable | African American | | Asian/Pacific Islander | | Caucasian | | Filipino | | Hispanic Latino/Latina | | Native American | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC | CA | NC |
| | N | N | N | N | N | N | N | N | N | N | N | N | N | N |
| | 15 | 36 | 6 | 3 | 148 | 407 | 2 | 0 | 12 | 2 | 1 | 5 | 5 | 1 |
| **Goals** | | | | | | | | | | | | | | |
| Not Advance | 40 | 67 | 67 | 0 | 61 | 72 | 50 | 0 | 75 | 0 | 0 | 100 | 20 | 100 |
| Advance | 60 | 33 | 33 | 100 | 39 | 28 | 50 | 0 | 25 | 100 | 100 | 0 | 80 | 0 |
| **Total** | 100 | 100 | 100 | 100 | 100 | 10 | 100 | 0 | 100 | 100 | 100 | 100 | 100 | 100 |

### Cross Tabulations of Percentages of Each Marital Status That Desire to Advance

| Variable | Not Advance CA | | Not Advance NC | | Advance CA | | Advance NC | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| | 112 | | 324 | | 77 | | 130 | |
| **Marital Status (%)** | | | | | | | | |
| Single (never married) | 10 | 53 | 27 | 71 | 9 | 47 | 11 | 29 |
| Married | 65 | 58 | 239 | 72 | 48 | 42 | 93 | 28 |
| Divorced | 31 | 69 | 44 | 67 | 14 | 31 | 22 | 33 |
| Other | 6 | 50 | 14 | 78 | 6 | 50 | 4 | 22 |

### Cross Tabulations of Percentages of Women with Female and Male Supervisor Who Desire to Advance

| Variable | Not Advance CA | | Not Advance NC | | Advance CA | | Advance NC | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| | 112 | | 324 | | 77 | | 130 | |
| **Gender of Supervisor** | | | | | | | | |
| Female | 57 | 63 | 165 | 76 | 34 | 37 | 52 | 24 |
| Male | 55 | 56 | 159 | 67 | 43 | 44 | 78 | 33 |